

iWay

Data Management Administration Tools
Suite Installation Guide
Version 5.2.0

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Preface

This manual provides information on the iWay Data Management Administration Tools Suite software products that are used in conjunction with iWay Servers, in order to monitor, configure, and tune your iWay environment.

How This Manual Is Organized

This manual includes the following chapters:

Chapter/Appendix		Contents
1	<i>Installing and Configuring the iWay Client Version 5.2</i>	Provides information on installing and configuring the iWay Client Version 5.2 using the iWay Configurator snap-in with the Microsoft Management Console (MMC).
2	<i>Installing the iWay Data Management Administration Tools Suite</i>	Provides an introduction to the iWay Data Management Administration Tools Suite. In addition, this chapter includes installation requirements and steps to install the components in the suite.
3	<i>Uninstalling the iWay Data Management Administration Tools Suite</i>	Describes how to uninstall the components of the iWay Data Management Administration Tools Suite.
4	<i>Editing Master Files for FOCUS and Relational Data Sources</i>	Describes how to manage Master Files for reporting and data maintenance applications with the Master File Editor. This tool enables you to create a Master File and generate the data description language required to read the data in data sources.
A	<i>Sample Communications Configuration File (ODIN.CFG)</i>	Provides a sample communications configuration file using TCP/IP, LU6.2, and MQIS protocols, and a Cluster Node. It also provides keywords that are supported in the communications configuration file.

Documentation Conventions

The following conventions apply throughout this manual:

Convention	Description
<code>THIS TYPEFACE</code> or <code>this typeface</code>	Denotes syntax that you must enter exactly as shown.
<i>this typeface</i>	Represents a placeholder (or variable) in syntax for a value that you or the system must supply.
<u>underscore</u>	Indicates a default setting.
<i>this typeface</i>	Represents a placeholder (or variable) in a text paragraph, a cross-reference, or an important term.
this typeface	Highlights a file name or command in a text paragraph that must be lowercase.
<i>this typeface</i>	Indicates a button, menu item, or dialog box option you can click or select.
Key + Key	Indicates keys that you must press simultaneously.
{ }	Indicates two or three choices; type one of them, not the braces.
[]	Indicates a group of optional parameters. None are required, but you may select one of them. Type only the parameter in the brackets, not the brackets.
	Separates mutually exclusive choices in syntax. Type one of them, not the symbol.
...	Indicates that you can enter a parameter multiple times. Type only the parameter, not the ellipsis points (...).
.	Indicates that there are (or could be) intervening or additional commands.

Related Publications

Visit our World Wide Web site, <http://www.iwaysoftware.com>, to view a current listing of our publications and to place an order. You can also contact the Publications Order Department at (800) 969-4636.

Customer Support

Do you have questions about the iWay Data Management Administration Tools Suite?

Call iWay Software's Customer Support Service (CSS) at (800) 736-6130 or (212) 736-6130. Customer Support Consultants are available Monday through Friday between 8:00 a.m. and 8:00 p.m. EST to address all your iWay questions. iWay Software's consultants can also give you general guidance regarding product capabilities and documentation. Please be ready to provide your six-digit site code number (xxxx.xx) when you call.

You can also access support services electronically, 24 hours a day, with InfoResponse Online. InfoResponse Online is accessible through our World Wide Web site, <http://www.iwaysoftware.com>. It connects you to the tracking system and known problem database at iWay Software's support center. Registered users can open, update, and view the status of cases in the tracking system and read descriptions of reported software issues. New users can register immediately for this service. The technical support section of www.iwaysoftware.com also provides usage techniques, diagnostic tips, and answers to frequently asked questions.

To learn about the full range of available support services, ask your iWay Software representative about InfoResponse Online, or call (800) 969-INFO.

Information You Should Have

To help our consultants answer your questions most effectively, be ready to provide the following information when you call:

- Your six-digit site code (xxxx.xx).
- Your iWay Software configuration:
 - The iWay Software version and release.
 - The communications protocol (for example, TCP/IP or LU6.2), including vendor and release.
- The stored procedure (preferably with line numbers) or SQL statements being used in server access.
- The database server release level.
- The database name and release level.
- The Master File and Access File.

- The exact nature of the problem:
 - Are the results or the format incorrect? Are the text or calculations missing or misplaced?
 - The error message and return code, if applicable.
 - Is this related to any other problem?
- Has the procedure or query ever worked in its present form? Has it been changed recently? How often does the problem occur?
- What release of the operating system are you using? Has it, your security system, communications protocol, or front-end software changed?
- Is this problem reproducible? If so, how?
- Have you tried to reproduce your problem in the simplest form possible? For example, if you are having problems joining two data sources, have you tried executing a query containing just the code to access the data source?
- Do you have a trace file?
- How is the problem affecting your business? Is it halting development or production? Do you just have questions about functionality or documentation?

User Feedback

In an effort to produce effective documentation, the Documentation Services staff welcomes any opinion you can offer regarding this manual. Please use the Reader Comments form at the end of this manual to relay suggestions for improving the publication or to alert us to corrections. You can also use the Documentation Feedback form on our Web site, <http://www.iwaysoftware.com>.

Thank you, in advance, for your comments.

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For information on course descriptions, locations, and dates, or to register for classes, visit our World Wide Web site (<http://www.iwaysoftware.com>) or call (800) 969-INFO to speak to an Education Representative.

Interested in technical assistance for your implementation? Our Professional Services department provides expert design, systems architecture, implementation, and project management services for all your business integration projects. For information, visit our World Wide Web site (<http://www.iwaysoftware.com>).

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CHAPTER 1

Installing and Configuring the iWay Client Version 5.2

Topics:

- Software Requirements
- Communications Requirements
- Installing the iWay Client
- Defining Communications With the Configurator

The following section describes how to install and configure the iWay Client Version 5.2.

Software Requirements

You must install the iWay Client on one of the following operating systems:

- Microsoft Windows NT®, Version 4.0 with Service Pack 3 or higher
- Microsoft Windows 98
- Microsoft ME
- Microsoft Windows 2000
- Microsoft Windows XP

Communications Requirements

The following table lists the requirements for specific network protocols:

Protocol	Requirements
LU6.2	The workstation must be defined to VTAM as an SNA Physical Unit type 2.1 (PU2.1). Microsoft SNA*Server Version 4.0 with Service Pack 1 or higher or IBM's eNetwork Communications Server 5.01 must be installed and configured with a valid LU6.2 connection to the host.
TCP/IP	TCP/IP communications require a valid TCP/IP connection to a server. Microsoft TCP/IP for Windows NT, Windows 98, ME, or Windows 2000 must be installed and configured with a valid connection to the host.
MQIS	MQIS communications require a valid IBM MQSeries connection to a server. IBM MQSeries must be installed and configured prior to installation of the client software. The MQSeries queue and queue manager names will be used by the communications configuration file.
HTTP	HyperText Transfer Protocol must have a valid internet communication to the World Wide Web.

Installing the iWay Client

The iWay Client is a Windows NT/2000-based installation.

Procedure How to Install the iWay Client Using the Client Suite CD

1. Insert the Client Suite CD into your CD/DVD drive.

Note: If autorun does not start the installation procedure, choose *Run* from the Windows Start menu. At the command prompt, type

drive: \setup.exe

where:

drive

Is the drive letter associated with your CD/DVD drive.

Click *OK*.

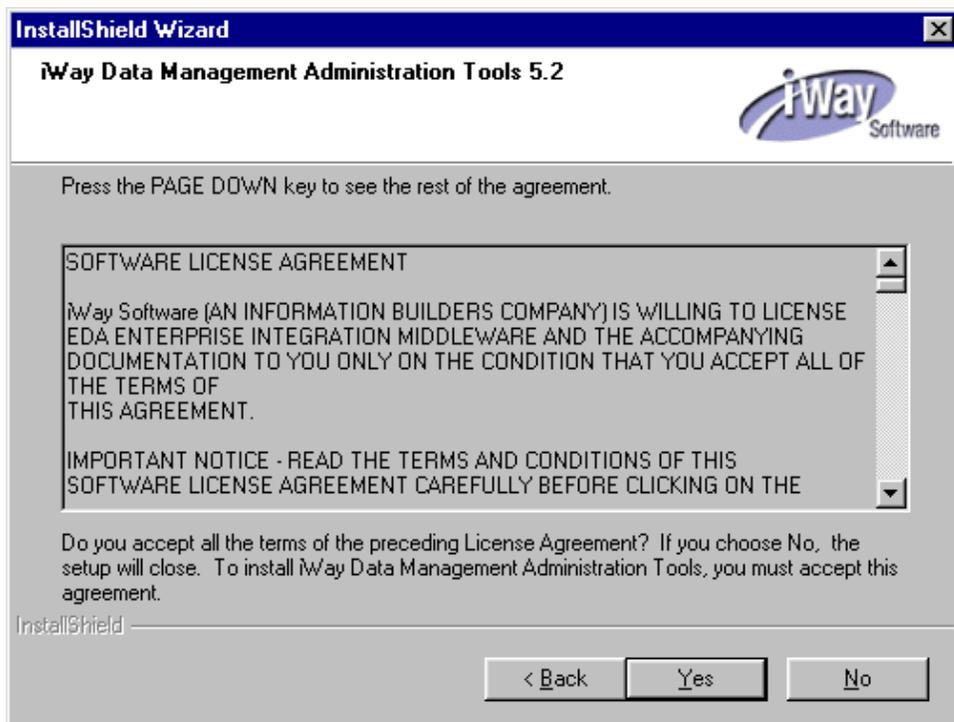
Caution: Make sure you close all open applications before you begin the Setup program.

The Choose Setup Language dialog box opens:



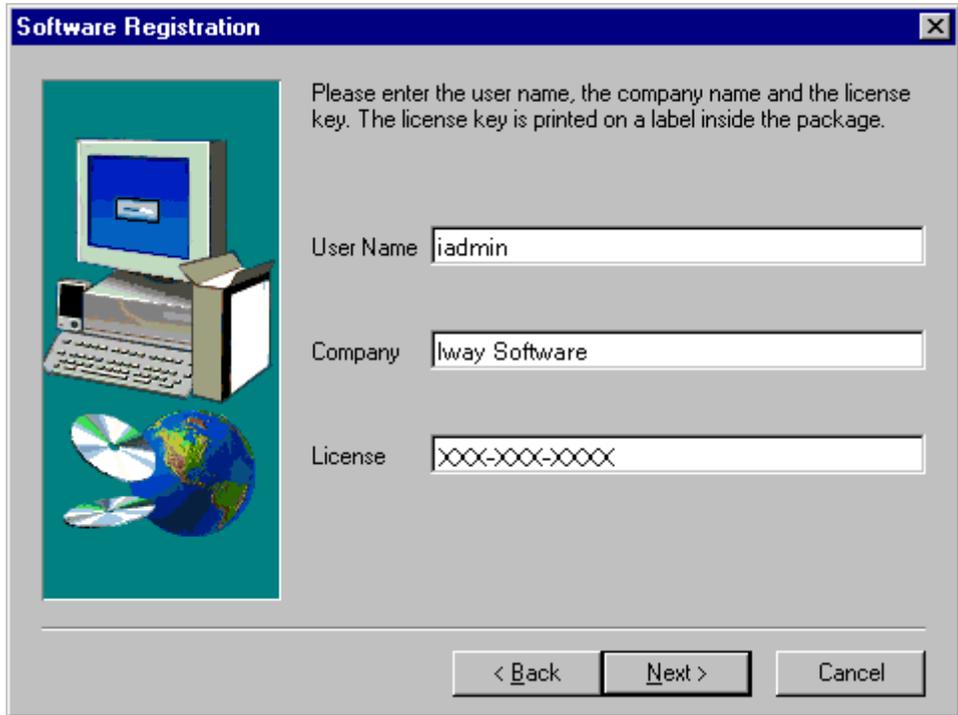
2. Select a language and click *OK*.

The License Agreement window opens:



3. Click *Yes* to accept the terms of the agreement and continue installing the iWay Client.

4. Click *Next*. The Customer Information window opens:



The image shows a 'Software Registration' dialog box with a blue title bar and a close button. On the left is a graphic of a computer monitor, keyboard, mouse, and software boxes. On the right, there is instructional text and three input fields. The 'User Name' field contains 'iadmin', the 'Company' field contains 'Iway Software', and the 'License' field contains 'XXX-XXX-XXXX'. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

Software Registration

Please enter the user name, the company name and the license key. The license key is printed on a label inside the package.

User Name

Company

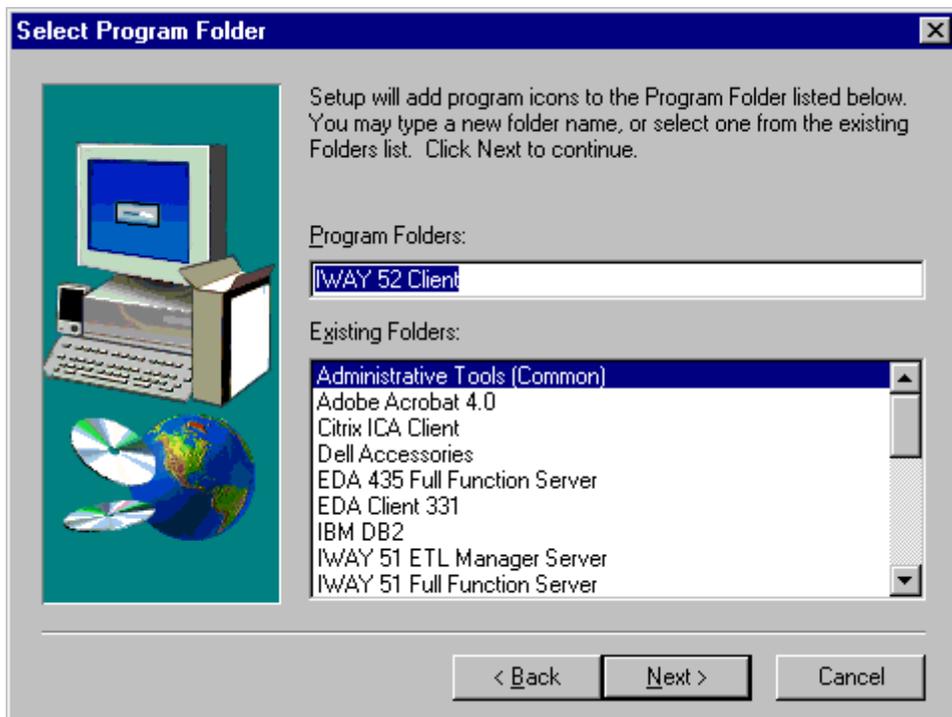
License

< Back Next > Cancel

5. Enter the user name, company name, and license key.

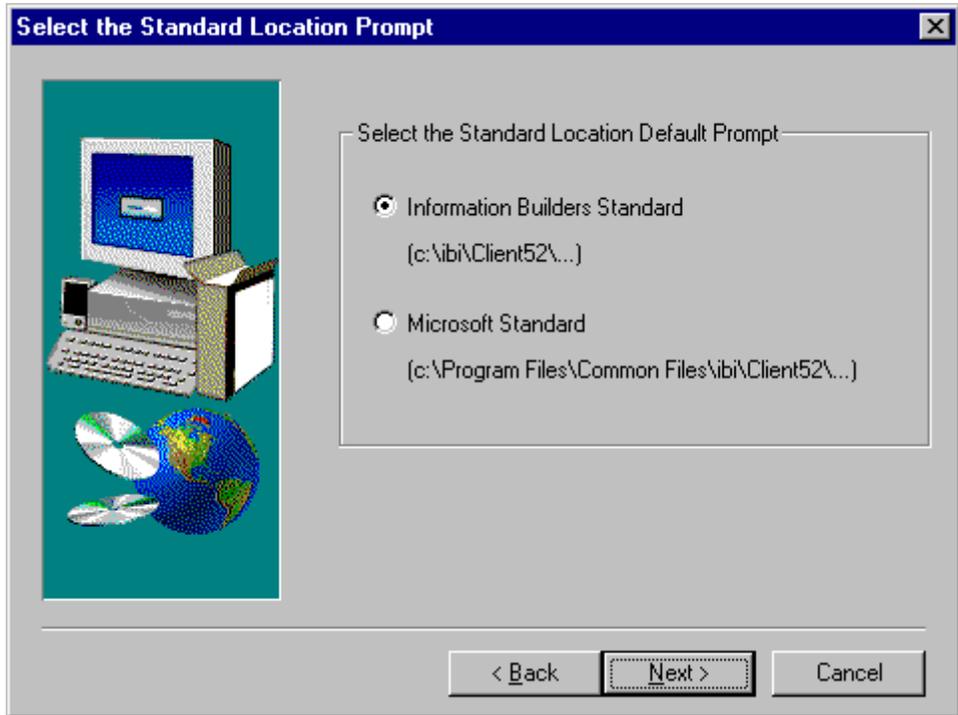
Note: The license key is included in the software packaging.

6. Click *Next*. The Select Program Folder window opens:



7. The default program name, iWay 52 Client, appears in the Program Folders field. You may type a new folder name or select one from the Existing Folders list. The Install program adds this folder to the Startup menu.

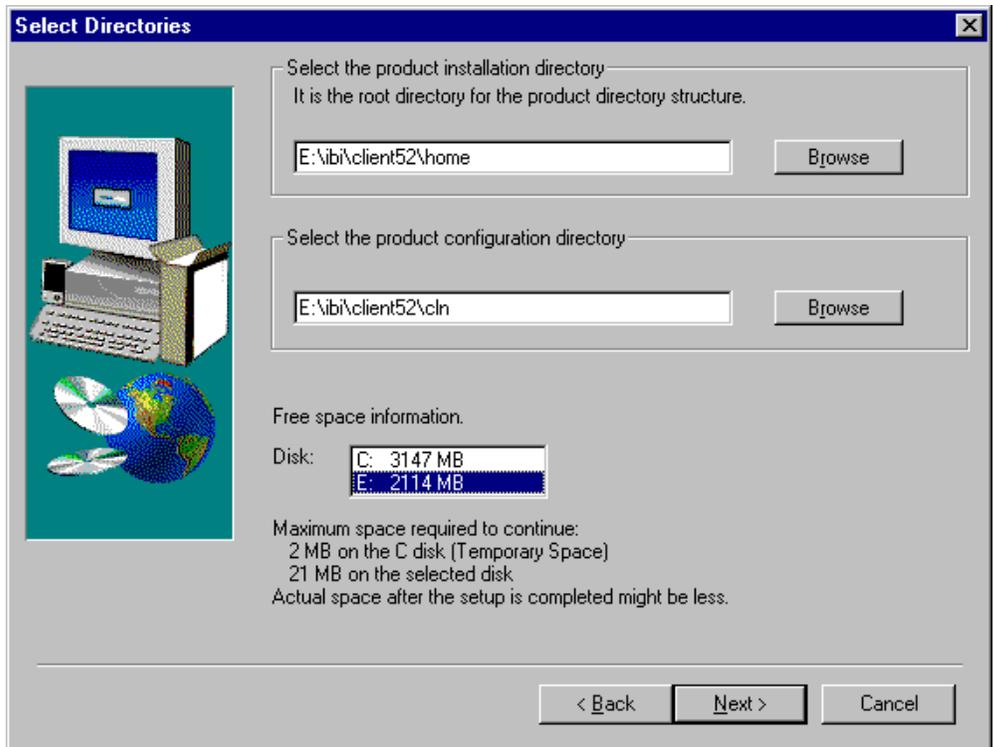
8. Click *Next*. The Select Standard Location window opens:



9. Choose the default folder you want the system to use. To choose a different folder, click *Browse*, and select another folder.

Note: The new folder needs to follow the naming convention for the Information Builders Standard that format is: drive:*\ibi\Client52*. For the Microsoft Standard that convention is: drive:*\Program Files\Common Files\ibi\Client52*.

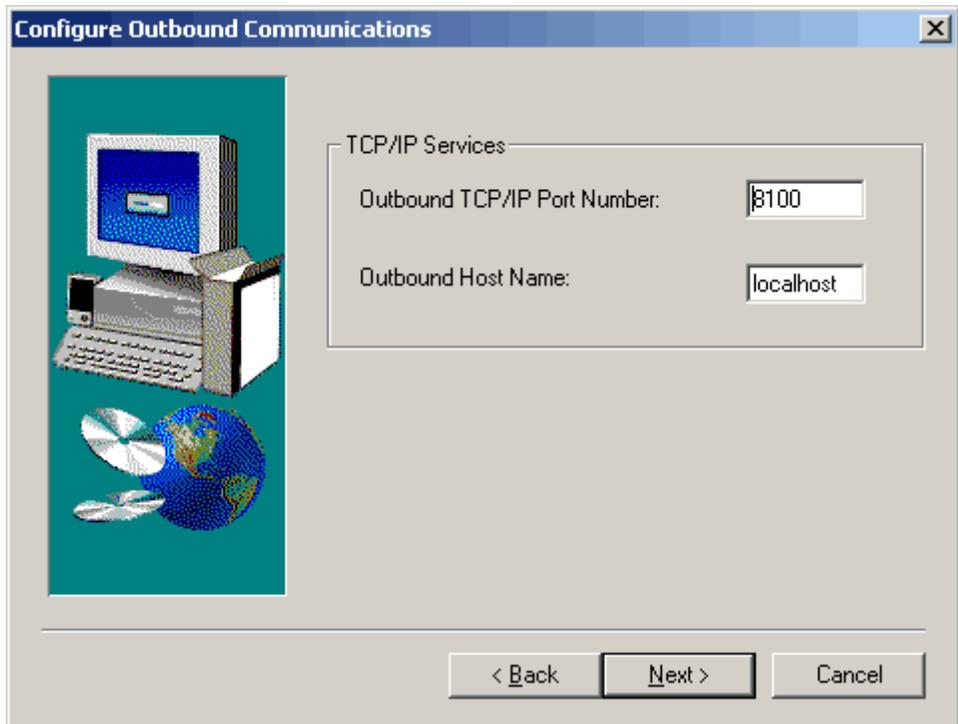
10. Click *Next*. The Select Directories window opens:



The defaults are based on the standard previously selected.

Note: The new folder must follow the naming convention for the Information Builders Standard. The format is: drive:*\ibi\Client52*. For the Microsoft Standard, the convention is: drive:*\Program Files\Common Files\ibi\Client52*.

11. Click *Next*. The Configure Outbound Communications window opens:



12. The TCP/IP Services define the server port and host to be connected to. This will have the default name EDASERVE and will be created in the communications file (odin.cfg), after the client is installed. This information can be changed using the client configurator, the Notepad, or the Web Console. The Server Administrator ID and Password are used for the Web Console.
13. To start copying files, click *Next*.

14. When the installation is complete, the Setup Complete window opens:



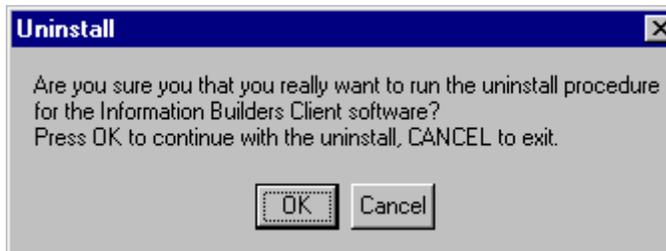
15. Click *Finish* to complete setup.

Procedure **How to Uninstall, Modify, and Repair the Installation**

At any time after installing the iWay Client, you can refresh or remove the client.

To remove the installation:

1. From the Windows Start menu choose *Programs*, then *iWay 52 Client*. Choose the *Uninstall* option. The Uninstall dialog box opens:



2. Click *OK* to uninstall the iWay Client.

To refresh the installation:

1. Insert the Client Suite CD into your CD/DVD drive.

Note: If autorun does not start the installation procedure, choose *Run* from the Windows Start menu. At the command prompt, type

drive: \setup.exe

where:

drive

Is the drive letter associated with your CD/DVD drive.

Click *OK*.

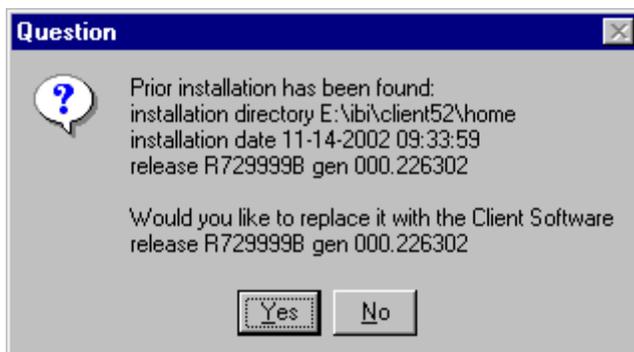
Caution: Make sure you close all open applications before you begin the Setup program.

The Choose Setup Language dialog box opens:



2. Select a language and click *OK*.

The question windows opens:



3. Click Yes to refresh the installation of the client software.

Defining Communications With the Configurator

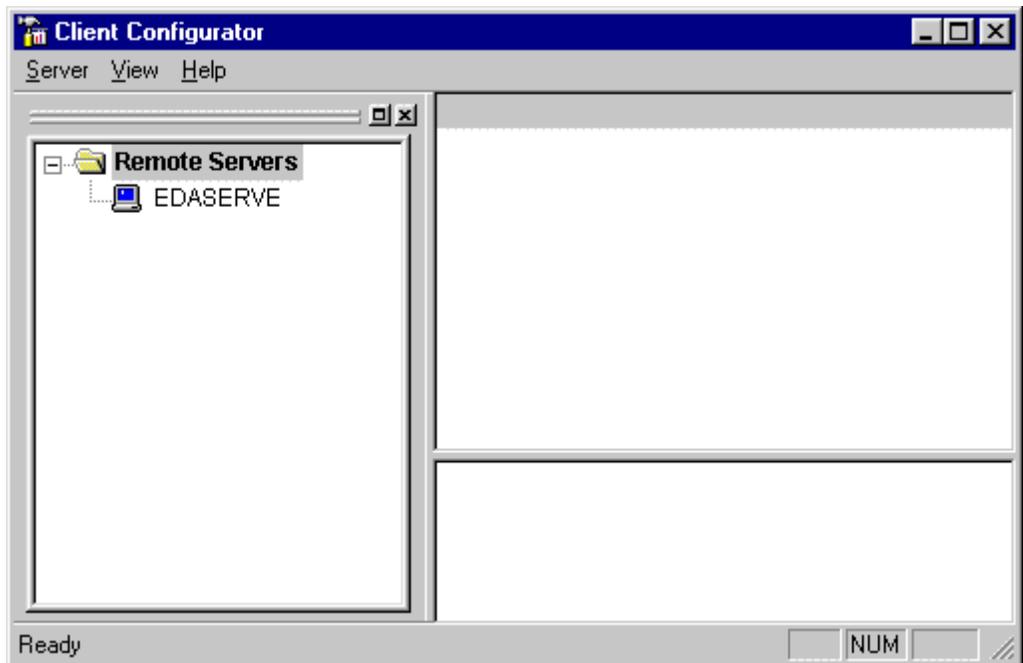
The configurator is a tool that enables you to configure and update the communications configuration file. When you have finished the configuration process using the configurator, an application can connect to a data source residing on a server. During the configuration process, you define node blocks that include the settings for communications between components. Setting up communications consists of defining the communications protocols, on which the server receives and transmits connector requests and data.

Viewing the Client Configurator Console Window

The Client Configurator Console consists of a window divided into two panes:

- **Console Tree.** Displays the snap-ins and the components available in the console.
- **Details Pane.** Displays information about and functions relating to the snap-ins.

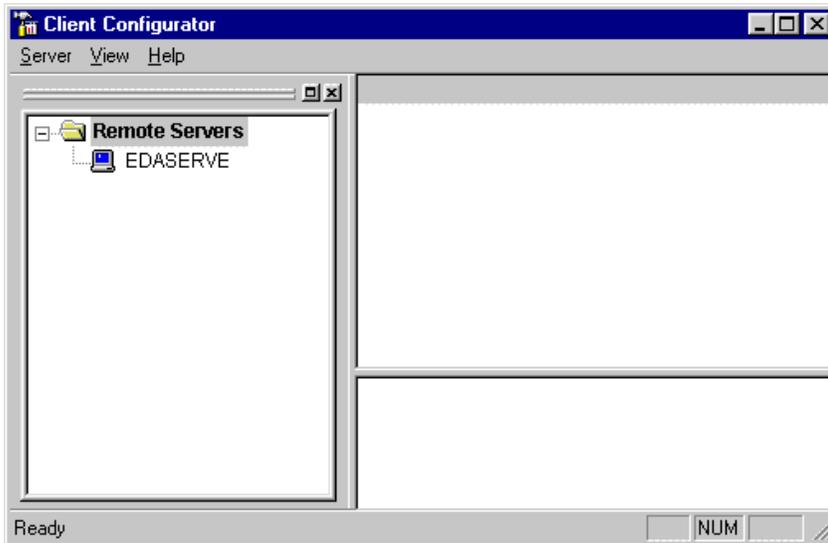
When you open the configurator, your environment appears as follows:



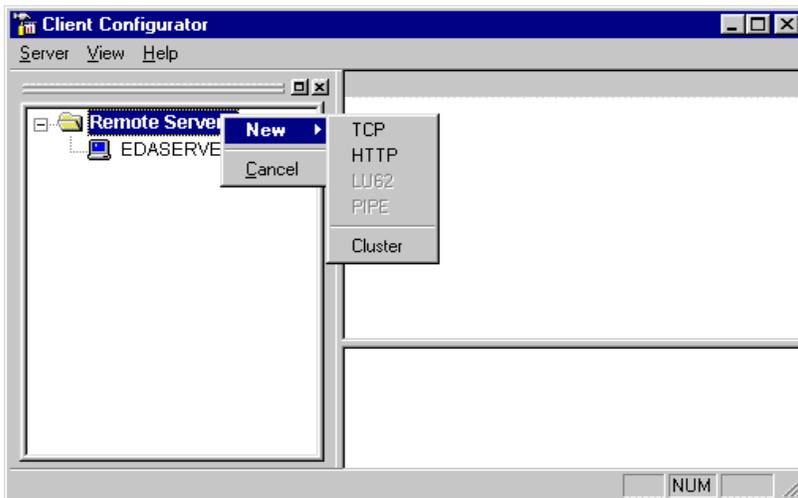
Note: When you click different items in the console tree, the contents of the details pane change.

Procedure How to Configure Protocols for Outbound Remote Communications

1. From the Start menu, select *Programs*, then *iWay Software*, then *iWay Connectors 5.2*, then *iWay Connector*, and then *Configurator*. The Client Configurator window opens::



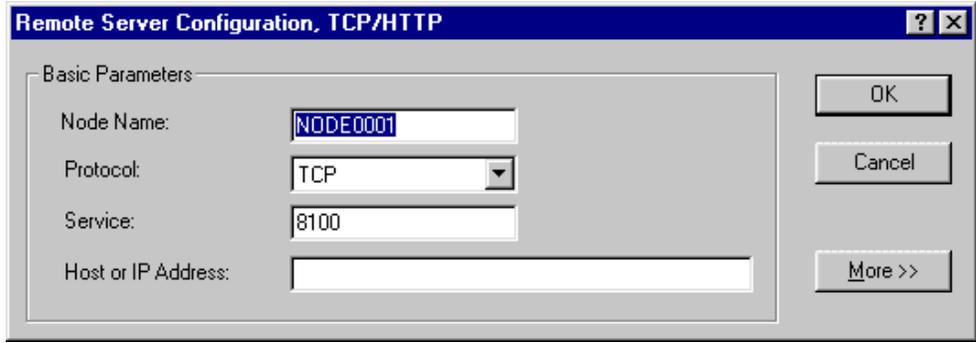
2. Expand the iWay Configurator of the console tree.
3. Right-click iWay Adapters and select *New*. The iWay Adapter Connection Configuration window opens:



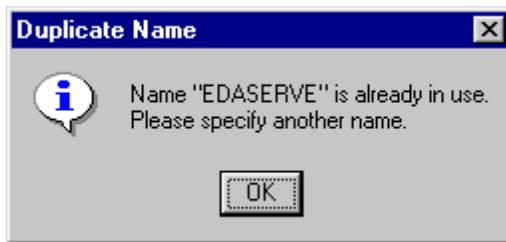
4. Select the protocol you want to use for outbound communications.

Procedure **How to Configure TCP/IP Outbound Communications**

1. When the Remote Server Configuration window opens, type the Node Name for the node block of the server to which you want to connect.



If the Node Name for a remote server name has already been entered for another protocol, the following message appears:



2. Click *OK*. When the Setup program returns to the protocol window, type a new Node Name.
3. The value entered for the Node Name can be arbitrary, but must be unique throughout the communications configuration file. Here NODE0001 appears as the default Node Description.
4. Enter the value of the service name representing the port number or the unique port number of the server. In the node block of the communications configuration file (ODIN.CFG), the keyword SERVICE equals the value entered.
5. Type the host name, representing either the server's IP address or the value of the server's IP address. In the node block of the communications configuration file (ODIN.CFG), the keyword HOST equals the value entered.

- For additional options, click *More*.

Remote Server Configuration, TCP/HTTP

Basic Parameters:

Node Name:

Protocol:

Service:

Host or IP Address:

Advanced Parameters:

Remote Service Name:

Connection Limit:

Maximum Wait Limit:

Compression Encryption:

Security Properties:

Security Type: IWA Explicit

User ID:

Password:

Node Description:

Buttons: OK, Cancel, Hide <<

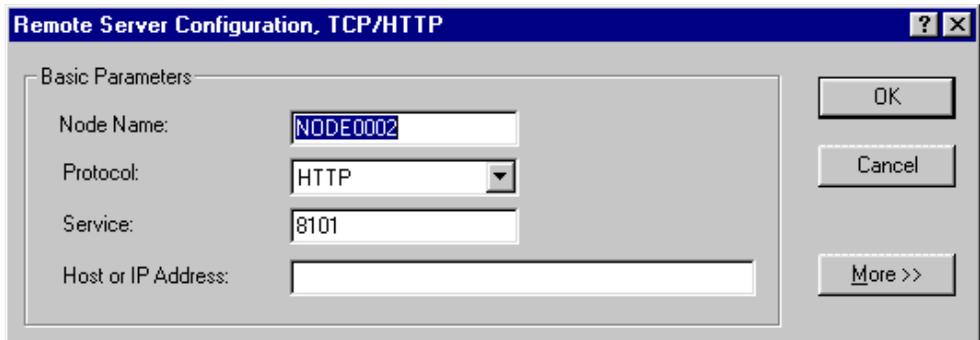
- If you are configuring access to MVS, you must supply the name of the service within the server to which you want to connect.
- Enter the Connection Limit, which defines the maximum time that the client will wait for a TCP connection response from the server. The default is -1 for an infinite wait.
- Enter the Maximum Wait Limit, which defines the time that the client will wait for a response from the server in seconds. The default is -1 for an infinite wait.
- Select *Compression* to activate data compression. In the node block of the communications configuration file (ODIN.CFG), the keyword *COMPRESSION* equals 1.

11. Select *Encryption* from the drop-down list to activate data encryption. The entire packet of data is encrypted before being sent to and received from a server. In the node block of the communications configuration file (ODIN.CFG), the keyword ENCRYPTION equals 0 by default. For a description of possible values, see Appendix A, *Sample Communications Configuration File (ODIN.CFG)*.
12. Click *Hide* to return to the previous window. Click *OK* to complete the configuration.
13. Verify connection to the remote server by either of the following methods:
 - Use the IWA Security for Windows feature, which uses your Windows user ID and password. Click *Test Connection* to verify the configuration settings.
 - Use the EXPLICIT box to enter the appropriate user ID and password. Click *Test Connection* to verify the configuration settings. Click the check box *Allow saving user id and password* to preserve this information for later use with the Simple Test Tool.

Note: Use the built-in Simple Test Tool included in the configurator to issue a query. The Simple Test Tool can also be used for further testing.

Procedure How to Configure HTTP Outbound Communications

1. When the Remote Server Configuration window displays, type the Node Name for the node block of the server to which you want to connect. The value entered for the Node Name can be arbitrary, but must be unique throughout the communications configuration file. The adapter name appears as the default Node Description.



If the Node Name for a remote server name has already been entered for another protocol, the following message appears:



2. Click *OK*. When the Setup program returns to the protocol window, retype a new Node Name.
3. The value entered for the Node Name can be arbitrary, but must be unique throughout the communications configuration file. Here NODE0002 is used as the default Node Description.
4. Enter the value of the service name representing the port number or the unique port number of the server. In the node block of the communications configuration file (ODIN.CFG), the keyword SERVICE equals the value entered.
5. Type the host name, representing either the server's IP address or the value of the server's IP address. In the node block of the communications configuration file (ODIN.CFG), the keyword HOST equals the value entered.

6. For additional options, click *More*.

Remote Server Configuration, TCP/HTTP

Basic Parameters

Node Name: NODE0002

Protocol: HTTP

Service: 8101

Host or IP Address:

Advanced Parameters

Remote Service Name:

Connection Limit:

Maximum Wait Limit:

Compression Encryption: 0

Security Properties:

Security Type: IWA Explicit

User ID:

Password:

Node Description:

OK

Cancel

Hide <<

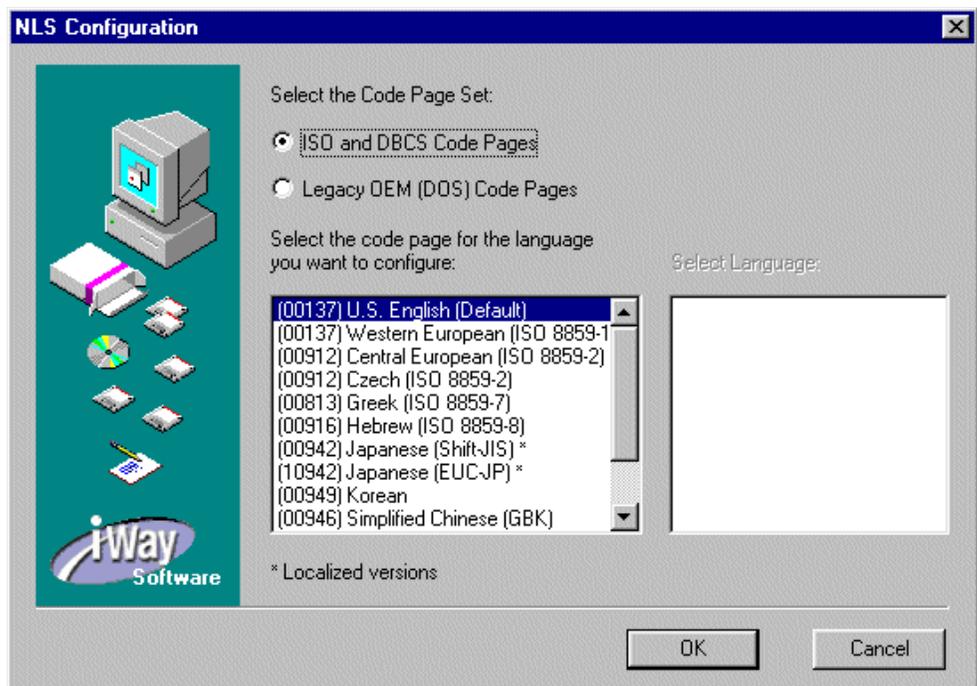
7. Enter the Maximum Wait Limit, which defines the time that the client will wait for a response from the server in seconds. The default is -1 for an infinite wait.
8. Select *Compression* to activate data compression. In the node block of the communications configuration file (ODIN.CFG), the keyword `COMPRESSION` equals 1.
9. Select *Encryption* from the drop-down list to activate data encryption. The entire packet of data is encrypted before being sent to and received from a server. In the node block of the communications configuration file (ODIN.CFG), the keyword `ENCRYPTION` equals 0 by default. For a description of possible values, see Appendix A, *Sample Communications Configuration File (ODIN.CFG)*.

10. Click *Hide* to return to the previous window. Click *OK* to continue with the configuration.
11. Verify connection to the remote server by either of the following methods:
 - Use the IWA Security for Windows feature, which uses your Windows user ID and password. Click *Test Connection* to verify the configuration settings.
 - Use the EXPLICIT box to enter the appropriate user ID and password. Enter the appropriate user ID and password. Click *Test Connection* to verify the configuration settings. Click the *Allow saving user id and password* check box to preserve this information for later use with the Simple Test Tool.

Note: Use the built-in Simple Test Tool included in the configurator to issue a query. You can also use the Simple Test Tool for further testing.

Procedure How to Configure National Language Support (NLS)

1. From the pull down menu, select *Server*.
2. Then choose *Configure NLS*. The Select the Code Page window opens:



National Language Support enables the client/server to translate both double- and single-byte National Character sets.

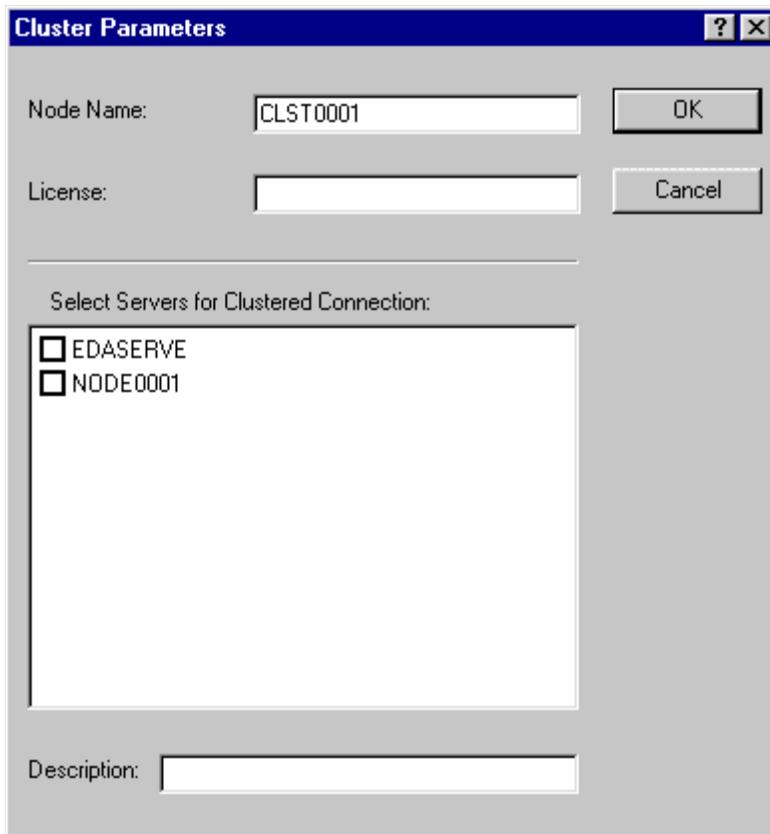
3. Select a Code Page Set by clicking the appropriate button. A list of languages appears in the text box. Select the desired language and click *OK*. In the node block of the communications configuration file (ODIN.CFG), the keyword `CODE_PAGE` equals the value entered.

Procedure **How to Create a Cluster**

When a user or application requests a connection to the cluster node, the connector randomly chooses a server from the cluster (which comprises a group of configured servers.)

The cluster functionality can be seen as a workload distributor because it distributes users and applications to different servers. Although this is a random process, connection is controlled through a single primary node.

1. From the Pull Down Menu, select *Server* and then *New*. Choose the *Cluster* option. The New iWay Cluster configuration window opens:



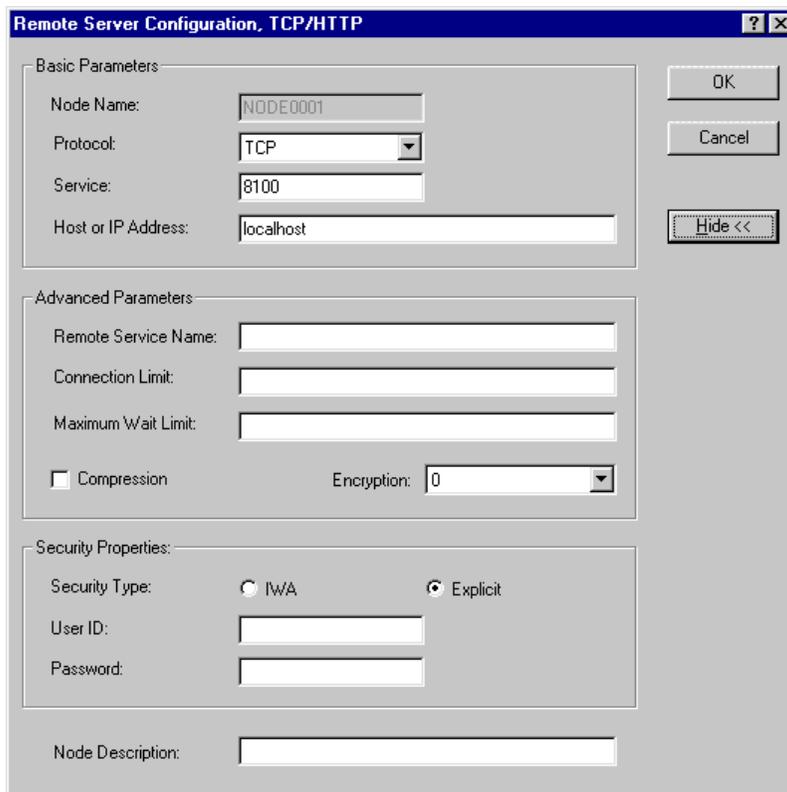
2. Enter a cluster name, the License, and a description.
3. Click the Available Adapter(s) in the text box to add to the cluster node. Click *OK*. On the console, the name of the newly created cluster node appears. Each cluster node is subdivided into two elements:
 - Servers, including the servers of the cluster. In the cluster node block, the keyword *ALTERNATE* equals the list of the servers in the cluster.
 - Settings, including all the keywords of the cluster.

For more information about the supported keywords and their values for a cluster node, see Appendix A, *Sample Communications Configuration File (ODIN.CFG)*.

Procedure **How to Edit and Update the Node Block Properties for a Server**

The configurator allows editing and updating of the communications configuration file.

1. Select a server listed on the Console.
2. Right-click and select *Properties*. For TCP/IP outbound communications, the following Properties window opens:



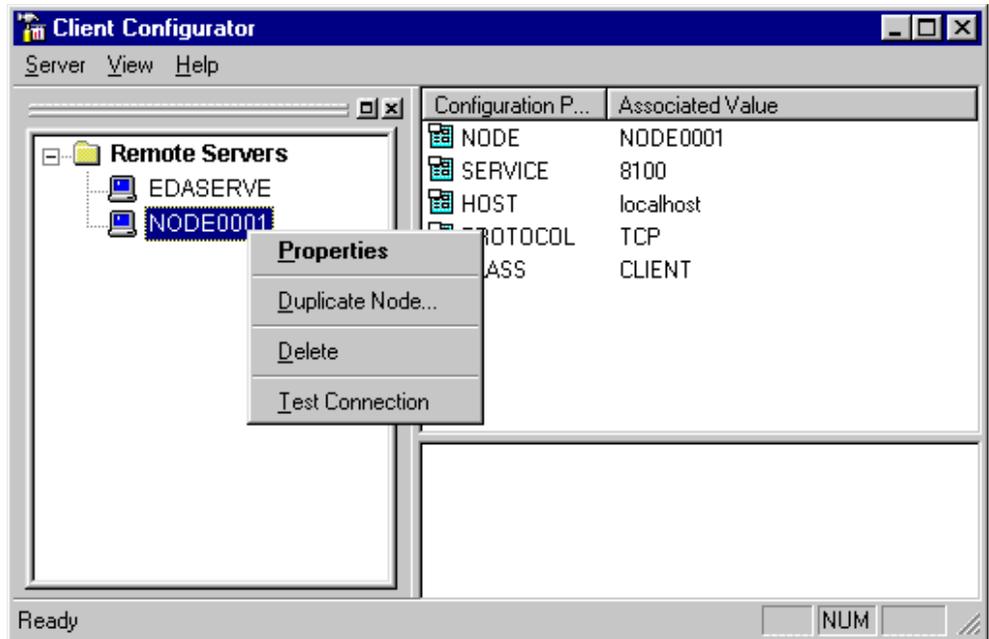
The screen will display the mandatory information of the node block created previously such as IP Address and Compression. To update the information, change the data in the appropriate text box.

Note: A similar Property box displays the HTTP outbound communications with their appropriate parameters.

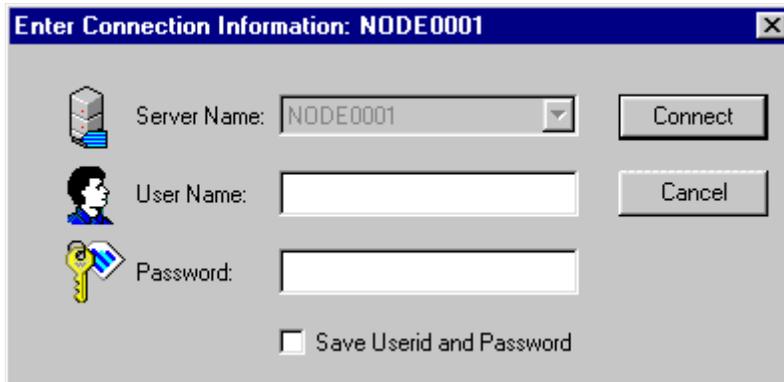
Procedure How to Issue a Query

The configurator has a built-in tool that tests the connection with a server.

1. Right-click the iWay Adapters item and select *Test Connection*.



If you did not previously save your user ID and password when issuing a Test Connection, the Enter Connection Information window opens:

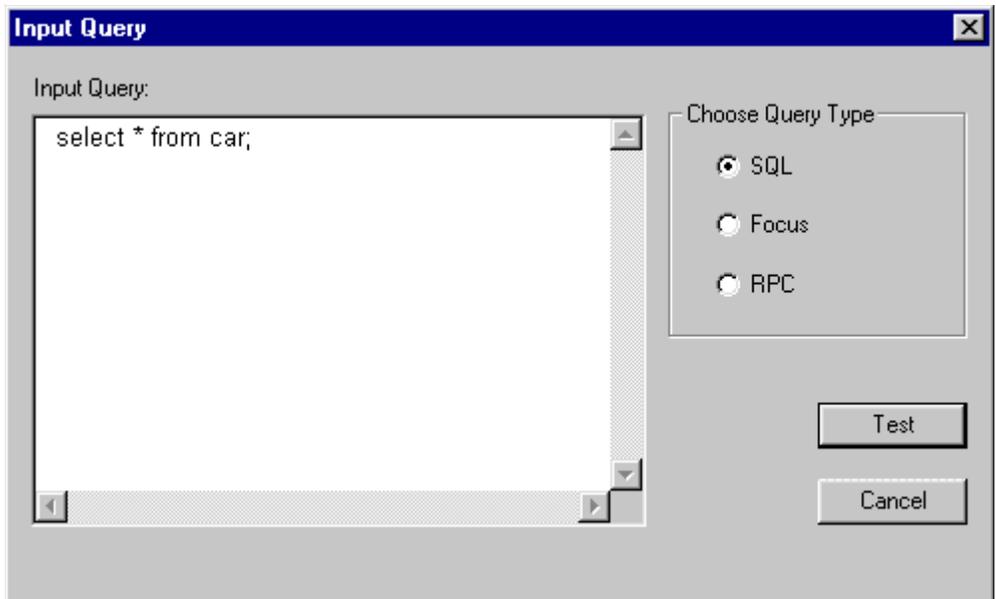


The screenshot shows a dialog box titled "Enter Connection Information: NODE0001". It features three input fields: "Server Name" with a dropdown menu showing "NODE0001", "User Name" with an empty text box, and "Password" with an empty text box. To the right of these fields are "Connect" and "Cancel" buttons. At the bottom, there is a checkbox labeled "Save Userid and Password" which is currently unchecked. The dialog box has a standard Windows-style title bar with a close button.

Enter the user ID and password to connect to the server, if needed. A query tool application, pops up and displays the following default SQL query:

```
select * from car
```

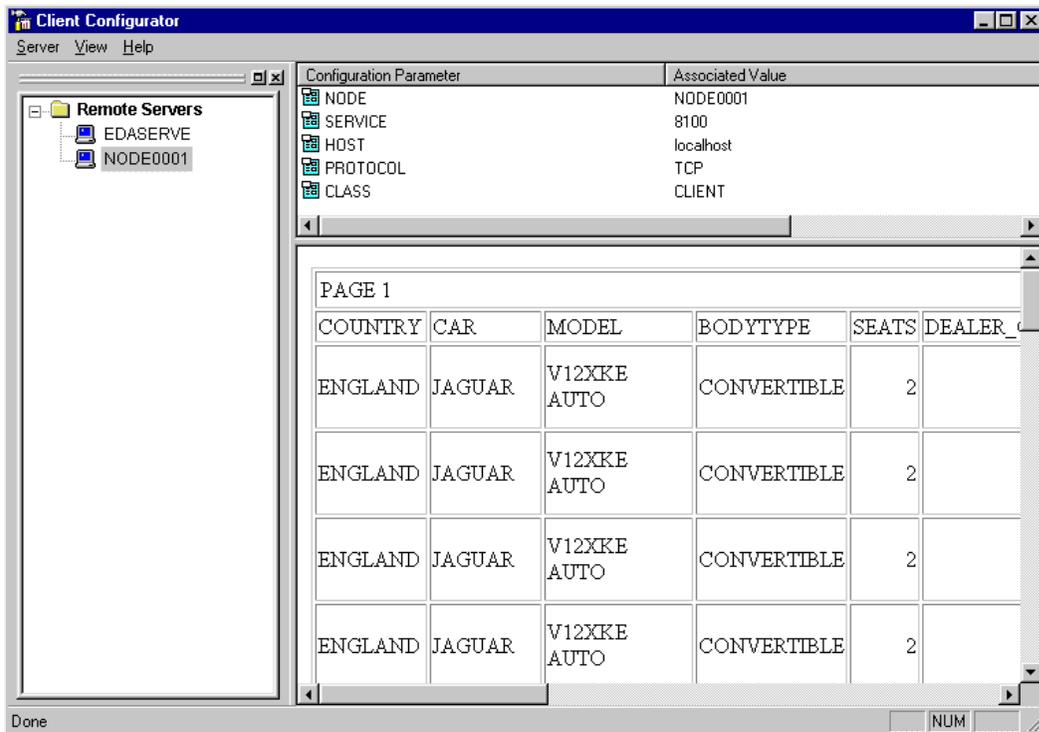
Note: You can only retrieve a request of up to 500 rows.



The screenshot shows a dialog box titled "Input Query". It has a large text area on the left containing the query "select * from car;". To the right of the text area is a section titled "Choose Query Type" with three radio button options: "SQL" (which is selected), "Focus", and "RPC". At the bottom right of the dialog box are "Test" and "Cancel" buttons. The dialog box has a standard Windows-style title bar with a close button.

2. To submit a query, choose a Query Type and click the *Test* button.

The details panel displays the result:



CHAPTER 2

Installing the iWay Data Management Administration Tools Suite

Topics:

- Introduction
- Hardware Requirements
- Software Requirements
- Installing the iWay Data Management Administration Tools Suite

The iWay Data Management Administration Tools Suite contains several iWay Software products that can be used in conjunction with your iWay Servers. The suite consists of the following:

- iWay Data Management Administration (Client) Tools
- Resource Analyzer and Resource Governor Web Application
- Enterprise Control Center

In addition, the iWay Data Management Administration Tools Suite requires the iWay Client Version 5.2 for Windows NT/2000.

The installation program for the iWay Client for Windows NT/2000 is included on the iWay Data Management Administration Tools Suite CD.

Though several software products are packaged on this CD, you must obtain a valid license from iWay Software to use them. For more information on software licensing, speak to your local iWay Software representative.

Introduction

The iWay Data Management Administration Tools Suite consists of a set of integrated tools, technology, and services you can use to build and manage a data warehouse or data mart. Before you can install any of the components contained within the suite, you must perform the following steps:

1. Install the server components.

ETL Manager, Resource Analyzer, and Resource Governor client tools have a corresponding server component. For installation instructions, see the appropriate iWay Server documentation.

2. Install the prerequisite software. For more information, see *Software Requirements* on page 2-3.

Note: In addition to installing the prerequisite software, the setup program installs a suite of documentation in both Windows Help and Adobe Acrobat® formats. You can access this documentation from the Documentation folder within the iWay Data Management Administration Tools Suite group folder.

Hardware Requirements

Verify that your system meets all of the following requirements:

- Pentium 233MHz or higher processor.
- One of the following Microsoft operating systems:
 - Windows NT 4.0 with Service Pack 6 or higher.
 - Windows 2000.
- SVGA or higher resolution graphics card set to at least 800x600 pixels and 256 colors.
- 64MB of RAM for Windows 2000 or Windows NT 4.0.
- 120MB of free hard disk space.
- CD/DVD drive for installation.
- Mouse or other compatible pointing device.

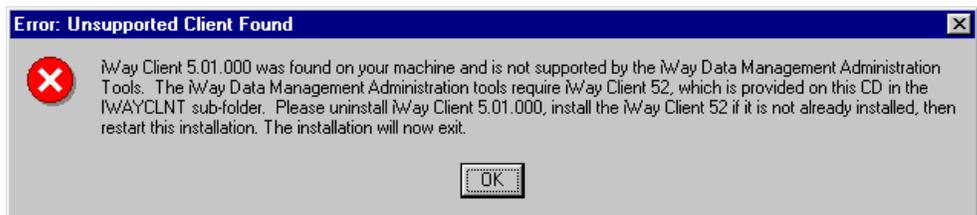
Software Requirements

The iWay Data Management Administration Tools Suite CD contains the installation wizards for all of the required prerequisite software. If you do not have the prerequisite software installed on your machine, you can install it during the setup program. The following prerequisites are required:

- iWay Client, Version 5.2

The installation of the iWay Client is not automatic. If the iWay Client is not installed, the iWay Data Management Administration Tools Suite installation displays an error message indicating that the installation cannot continue until you install the iWay Client, Version 5.2. To install the iWay Client software, double-click the setup.exe file from the \iwayclnt directory. When you are prompted for a license code, enter 900-000-0000.

If you are running an older version of the iWay Client, the following error message displays:



For more information on installing the iWay Client, see Chapter 1, *Installing and Configuring the iWay Client Version 5.2*.

- Microsoft Management Console (MMC), Version 1.2

Note: This product is included on this CD, in the Microsoft directory, and is required by the Data Management Console.

- Microsoft Internet Explorer, Version 5.5 or higher.

Note: This product is not included on this CD, but is required by the Data Management Console.

- Microsoft XML Parser, Version 3.0

Note: ETL Manager, Metadata Manager, and Metadata Viewer require the Microsoft XML Parser Version 3.x. If you do not have Microsoft XML Parser Version 3.x already installed, the Data Management Administration Tools installation displays an error message indicating that the installation cannot continue until you install it. The installation file (msxml3.exe) is located on the Data Management Administration Tools CD in the Microsoft Directory.

If you are installing on Windows NT, you must install the Microsoft Installer (winnt.InstMsi.exe), which is also located on the iWay Data Management Administration Tools Suite CD in the Microsoft Directory. If you are installing on Windows 2000, the Microsoft Installer is already included and no additional steps are required.

- Microsoft Forms 2.0 (not included on this CD)

Note: ETL Manager, which is installed with the client tools on this CD, requires Microsoft Forms Release 2.0. This software is included with Windows versions prior to Windows 2000 and Microsoft Office. If you do not have Microsoft Forms 2.0 installed, the iWay Data Management Tools Suite installation cannot continue. Microsoft Forms 2.0 is also a component of Microsoft ActiveX Control Pad. The location for downloading Microsoft ActiveX Control Pad is found in the Microsoft directory on the Data Management Administration Tools CD (Microsoft ActiveX Control Pad location.url).

Installing the iWay Data Management Administration Tools Suite

Once you have installed and configured the iWay Server components, you can install the iWay Data Management Administration Tools Suite, which consists of the following products:

- Catalog Administrator
- Metadata Manager
- ETL Manager
- Resource Analyzer Administrator
- Resource Governor Administrator
- FileTool
- ERwin Launch Tool

The iWay Data Management Administration Tools Suite is a Windows NT/2000-based installation.

Procedure **How to Install the iWay Data Management Administration Tools Suite**

1. Insert the iWay Data Management Administration Tools Suite CD in your CD/DVD drive.

Note: If autorun does not start the installation procedure, choose *Run* from the Windows Start menu. At the command prompt, type

drive: \setup.exe

where:

drive

Is the drive letter associated with your CD/DVD drive.

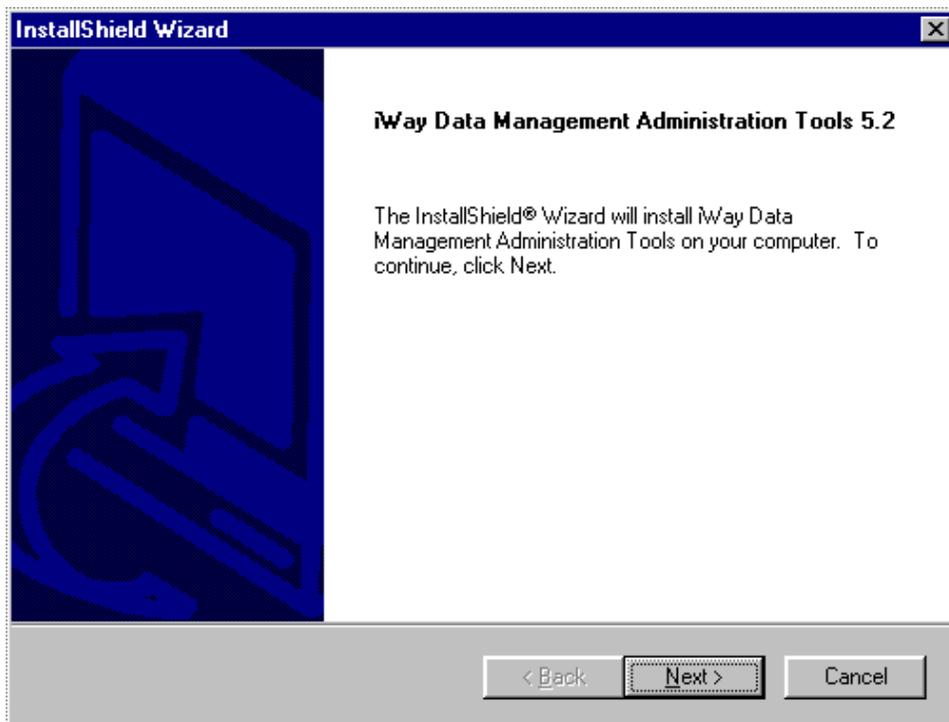
Click OK.

Caution: Make sure you close all open applications before you begin the Setup program.

The Setup program runs the InstallShield Wizard, which guides you through the installation program.

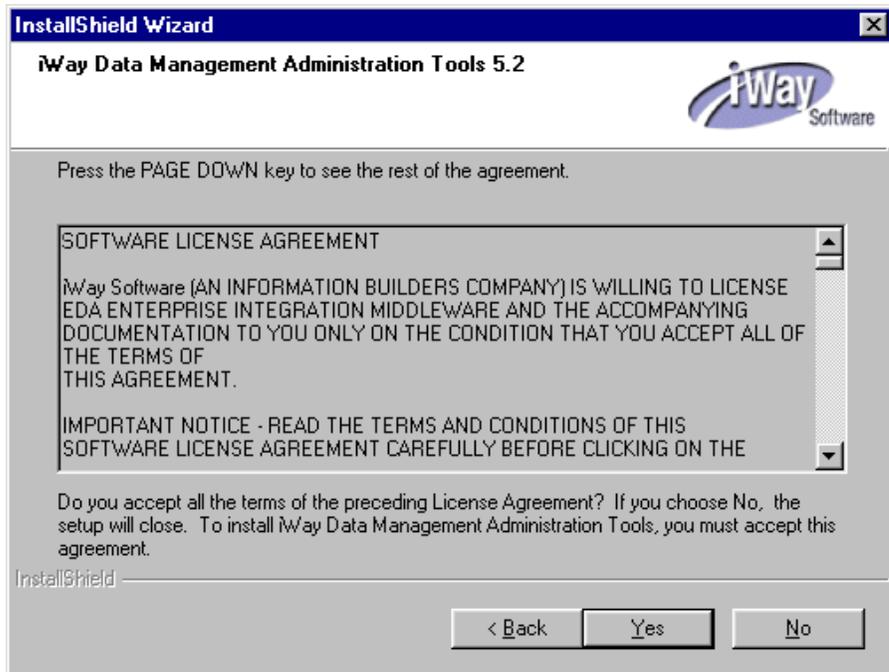


Once the InstallShield Wizard loads the iWay Data Management Administration Tools Suite installation, the Welcome window opens:



2. Click Next.

The Software License Agreement window opens:



3. Read the software license agreement. Click Yes to accept the agreement and continue with the installation.

4. The Customer Information window opens:

InstallShield Wizard

iWay Data Management Administration Tools 5.2

iWay Software

Please enter your name, the company whom you work for and the product license key. If you do not know your license key, contact your Information Builders sales office or Customer Support.

Owner

Company

License

InstallShield

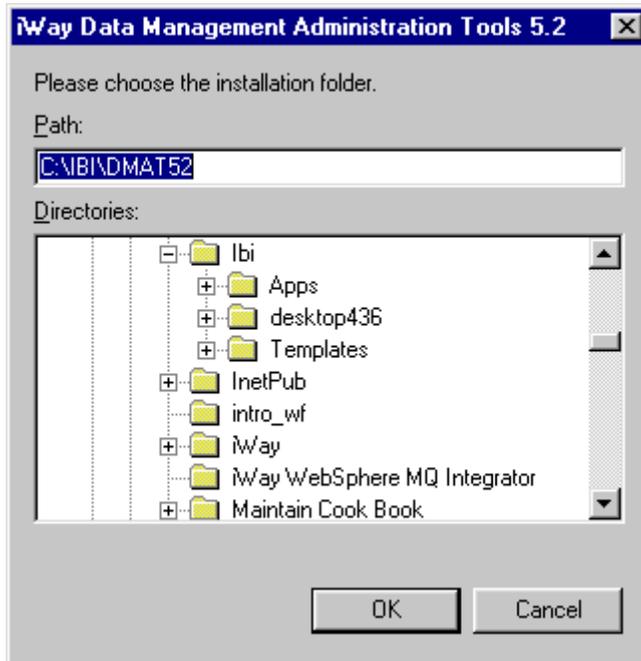
< Back Next > Cancel

5. Enter your name, the name of your company, and your license key.

Note: The license key is included in the software packaging.

6. Click *Next*.

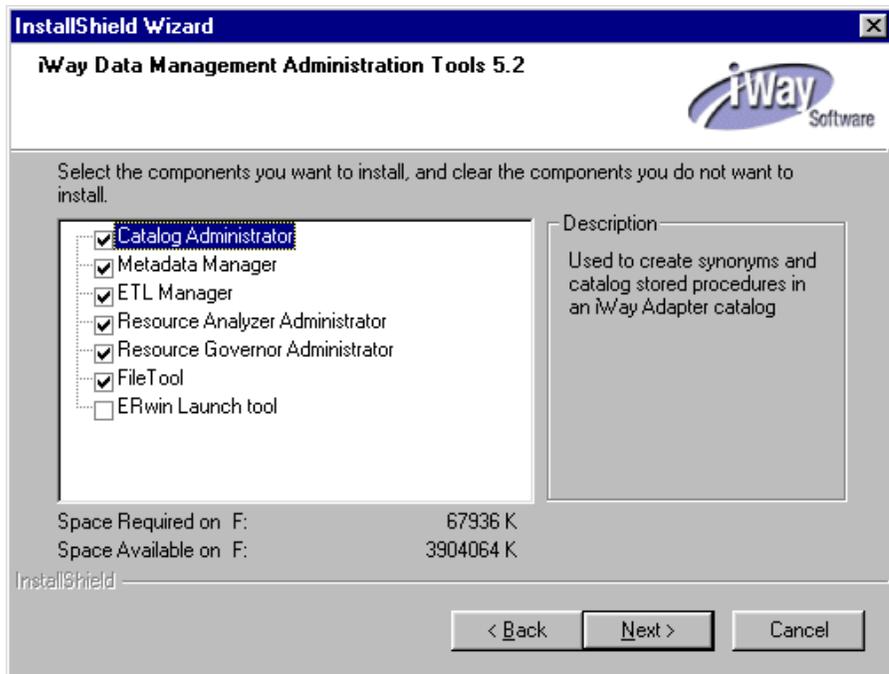
The Select a Destination Location window opens:



7. Specify the location on your hard drive where you want to install the iWay Data Management Administration Tools Suite. Each tool is stored in a subdirectory.

8. Click OK.

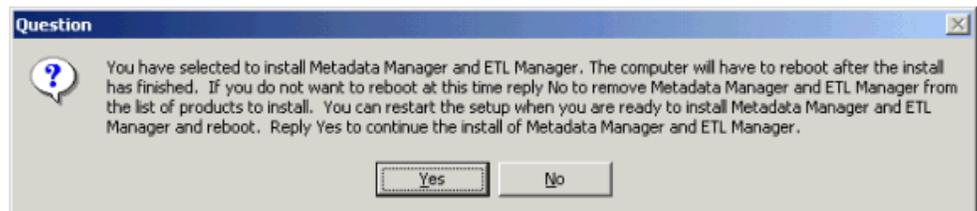
The Components window opens:



9. Select the components you want to install and click Next.

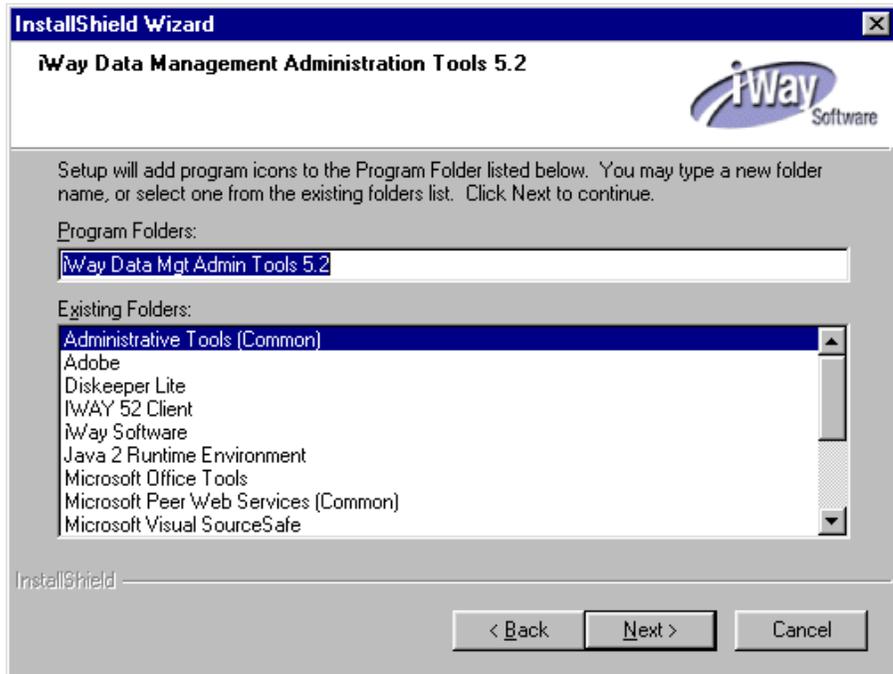
Note: The Microsoft XML Parser 3.0 is required to run these tools. If your system does not have the XML parser installed, you are prompted to install it at this time.

If you select Metadata Manager or ETL Manager, the following message displays:



10. Click Yes to continue with the installation.

The Program Folders window opens:



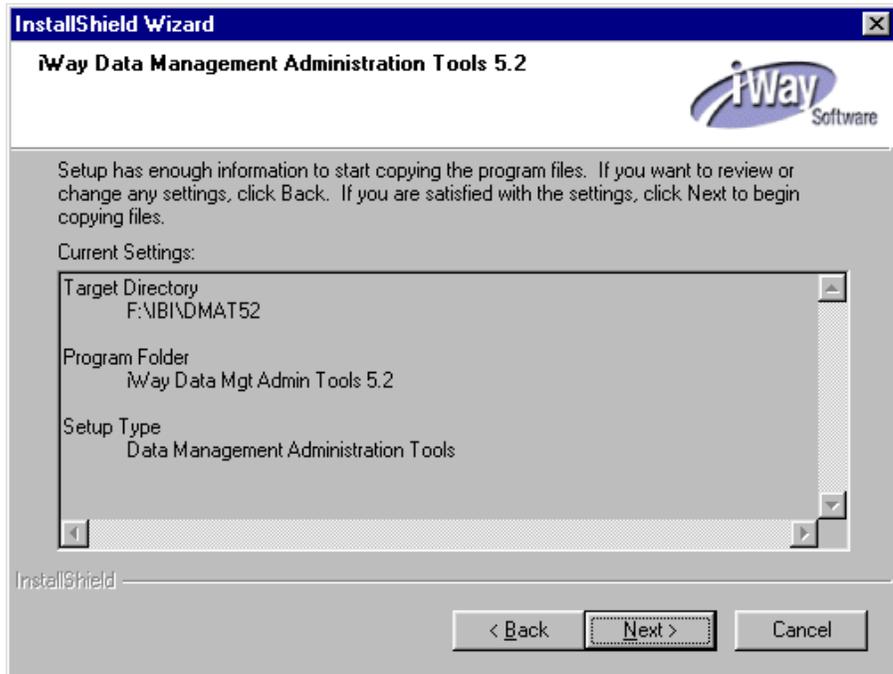
The Setup program adds program icons to the folder listed in the Program Folders field. *iWay Data Mgt Admin Tools 5.2* is the default program folder.

11. To select a different program folder:

- Select an existing program folder name from the list.
- or
- Type a new program folder name in the Program Folders field.

12. Click *Next*.

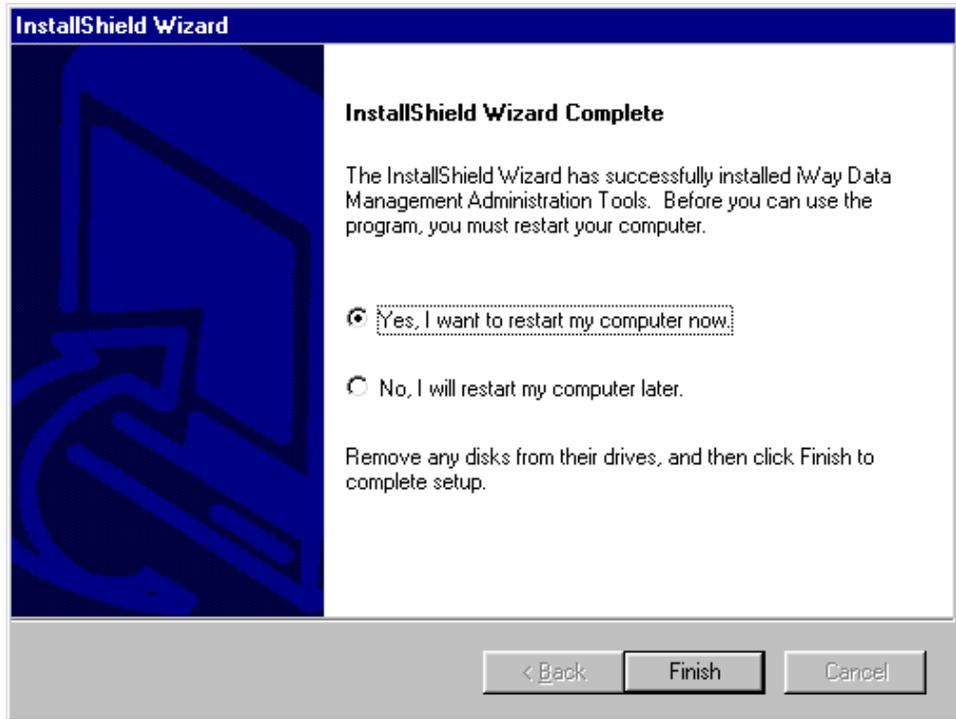
The Verification window opens:



13. Verify that the Target Directory, Program Folder, and Setup Type reflect your choices. If you are satisfied with the selections, click *Next*.

Note: If you need to change a selection, click the *Back* button until you arrive at the appropriate window. Then, modify your selection and continue to click *Next* until you return to the Verification window.

Once the installation is finished, the InstallShield Wizard Complete window opens:



14. Select one of the options and click *Finish*.

Note: You must restart your computer before you can use Metadata Manager or ETL Manager.

15. Once you have completed the installation procedure, the iWay Data Management Administration Tools Suite program folder is located within the iWay Software program folder in the Programs section of your Windows Start menu.

The default path is:

drive:\ibi\dmat52

where:

drive

Is the location on your hard drive where the iWay Data Management Administration Tools Suite is installed.

CHAPTER 3

Uninstalling the iWay Data Management Administration Tools Suite

Topics:

- Modifying, Repairing, and Removing the iWay Data Management Administration Tools Suite
- Installation Documentation

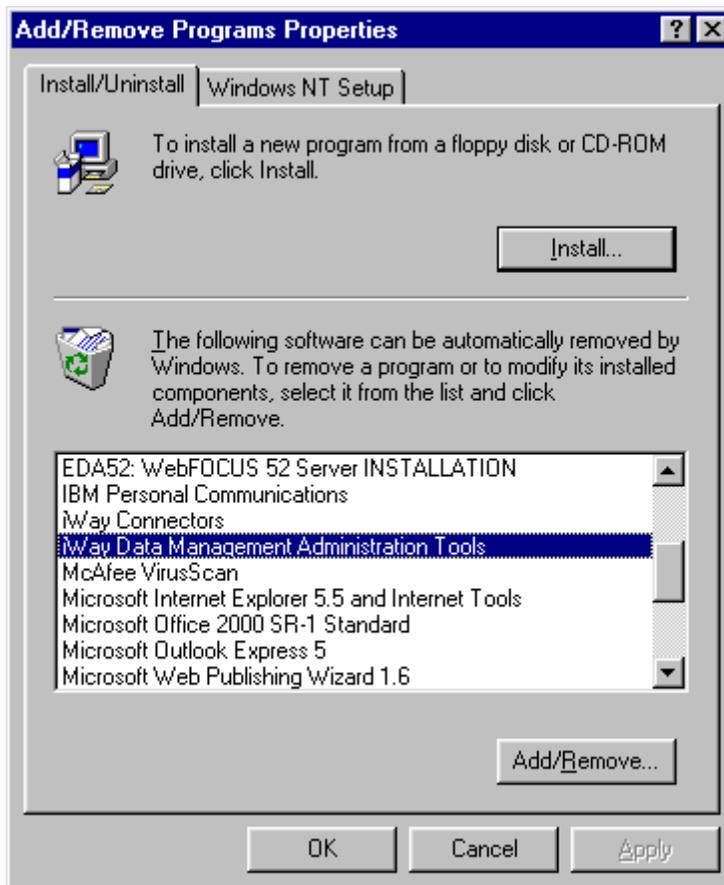
The following section describes how to modify, repair, and remove the components in the iWay Data Management Tools Suite.

Modifying, Repairing, and Removing the iWay Data Management Administration Tools Suite

You can modify, repair, and/or remove any of the components contained within the iWay Data Management Administration Tools Suite by using the Add/Remove option.

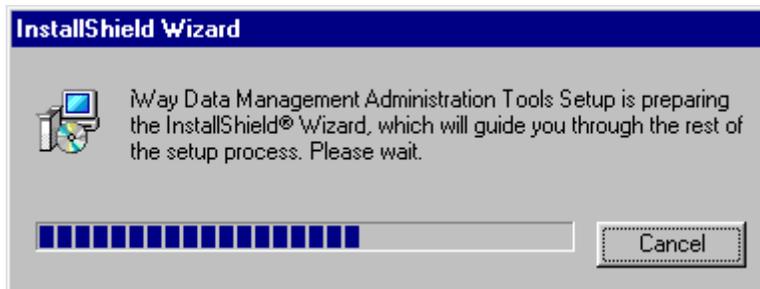
Procedure How to Modify, Repair, and Remove the iWay Data Management Administration Tools Suite

1. From the Windows Control Panel, double-click the *Add/Remove Programs* icon.
2. The Add/Remove Programs Properties window opens.

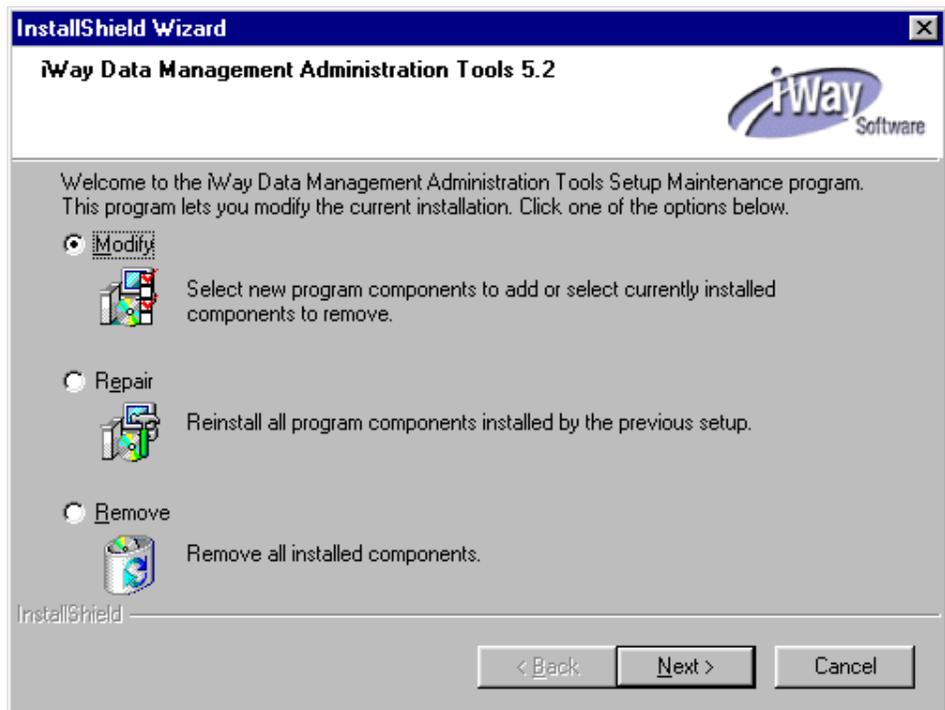


This window varies according to the version of Windows running on your machine.

3. Select *iWay Data Management Administration Tools*.
4. Click the *Add/Remove* button. The InstallShield Wizard window opens.

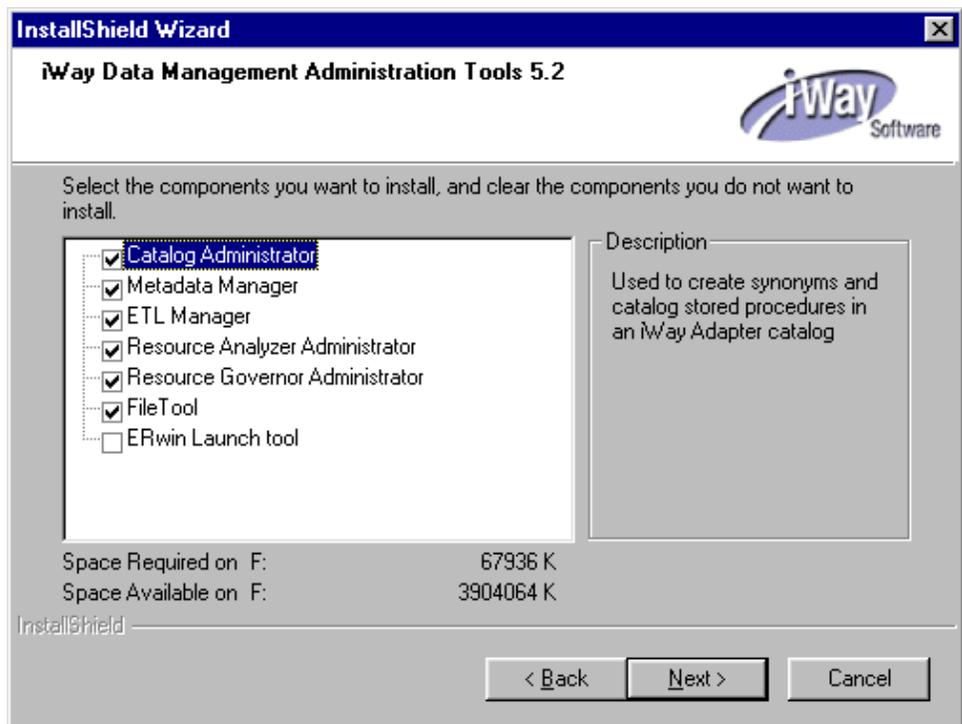


Once the InstallShield Wizard loads, the iWay Data Management Administration Tools Setup Maintenance window opens.



5. Choose one of the following options from the InstallShield Wizard Tools Setup Maintenance window:
 - a. Select *Modify* to add or remove products from the previous installation without removing any core components.
 - b. Select *Repair* to refresh the initial installation if any products have problems running. This option does not allow you to add or remove products.
 - c. Select *Remove* to uninstall all previously installed components of the iWay Data Management Administration Tools Suite.
6. Click *Next*.

If you select the *Modify* option is selected, the Components window opens.

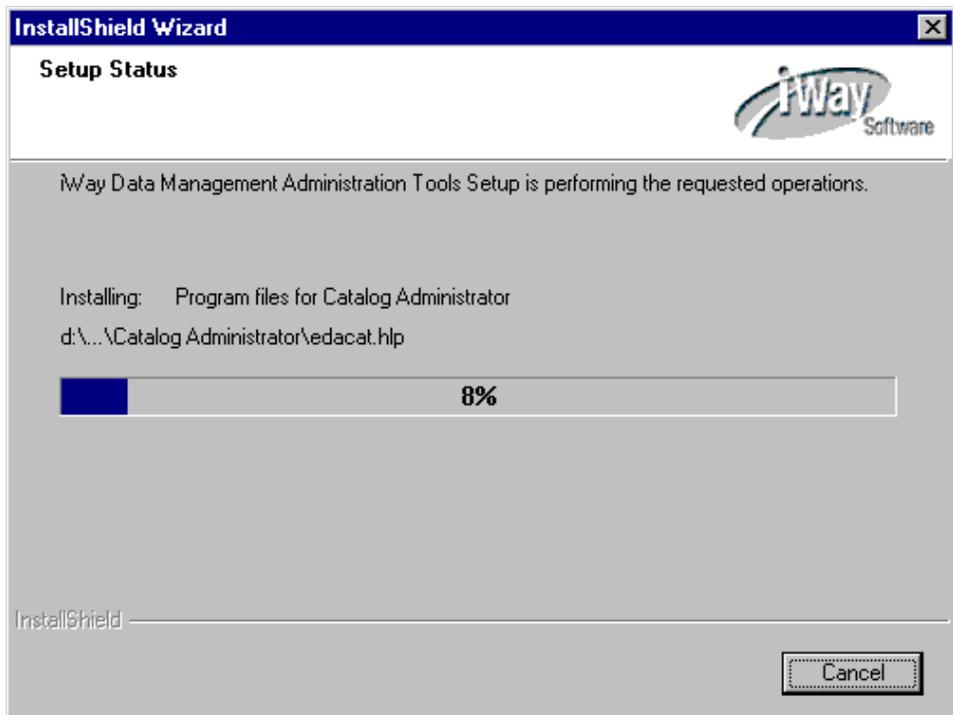


7. Select the components you want to install and/or deselect the components you want to uninstall and click *Next*.

Note: If you decide to uninstall Metadata Manager or ETL Manager, the following message displays:



8. Click *Yes* to continue uninstalling the products you selected.
9. If you select the *Repair* option, the maintenance operations are performed and the Setup Status window opens:



10. If you select the *Remove* option, the following message displays:



11. Click *OK* if you are sure that you want to delete all previously installed components of the iWay Data Management Administration Tools Suite.
12. Click *Finish* to close the Setup program.

Installation Documentation

A PDF version of the installation documentation for the iWay Client for Windows NT/2000 is included with the iWay Data Management Administration Suite CD.

CHAPTER 4

Editing Master Files for FOCUS and Relational Data Sources

Topics:

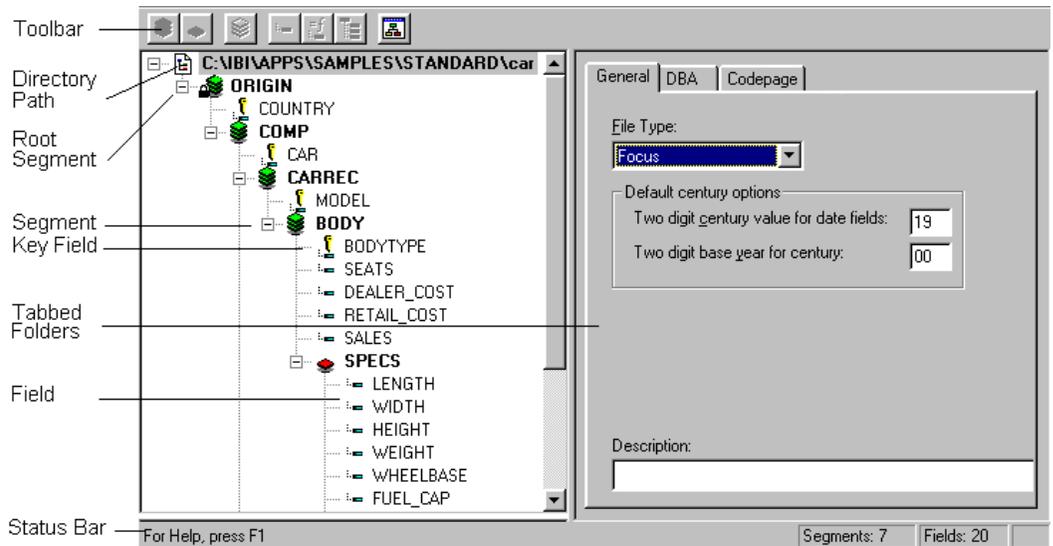
- Master File Editor
- Working With the Microsoft Management Console
- Registering the Servers
- FileTool Administrator Object
- Changing the Type of Data Source You Are Describing
- Assigning Century Values in a Master File
- Editing the Segments in a Master File
- Editing the Fields in a Segment
- OLAP-enabling a Master File
- Adding Virtual Fields to a Segment
- Adding Group Fields to a Segment
- Creating a Cross-Reference
- Setting Up Security for a Master File
- Viewing the Master File Layout
- Previewing and Printing a Master File

You can manage file descriptions using the Master File Editor. This tool enables you to edit a Master File, which is required to read the data in data sources.

The Master File Editor is also referred to as the FileTool Administrator. Before you can use the FileTool Administrator or Master File Editor, you must access the iWay Data Management Console and register the server.

Master File Editor

The Master File Editor is a multi-pane window with an Explorer tree structure in the left pane and tabs in the right pane that correspond to the item selected in the tree.



Left pane (Master File)

Displays a hierarchical view of the Master File. The hierarchical view includes the directory path for the Master File and the root segment, followed by either fields, or other segments with fields.

As you add segments and fields to the Master File, the editor builds the hierarchical structure for you. This structure displays a new segment under its parent segment, and fields under the segment to which they belong.

Right pane (Properties)

Displays information about the file, a segment, or a field (whichever is selected in the left pane). For each file element, the Properties pane adjusts to gather the required (and optional) information; tabs are used to group this information.

Toolbar

Provides access to the Master File Editor functions you use most often to describe segments, unique segments, cross-referenced segments, fields, temporary fields (virtual), group fields, and to show the layout of the Master File.

Menu bar

Provides access to every function of the Master File Editor.

Working With the Microsoft Management Console

The Microsoft Management Console (MMC) consists of one or more windows that assemble the tools, controls, tasks, and documentation required to administer specific components of the Windows NT network. Consoles are saved as files with an .msc extension. All of the configuration settings for the tools and controls are saved in the console file and restored when the file is opened.

Using Snap-ins

A snap-in is the basic component of the MMC. Snap-ins always reside in the console. They cannot run by themselves. When a component is installed on the Windows NT operating system and a snap-in is associated with it, the snap-in becomes available to anyone using the console.

Viewing the Microsoft Management Console Window

The Microsoft Management Console (MMC) consists of a window divided into the following two panes:

- **Console Tree.** Displays the snap-ins available in the console.
- **Details Pane.** Displays information about and functions relating to the snap-ins.

The FileTool Administrator is a Microsoft Management Console (MMC) snap-in to the iWay Data Management Console.

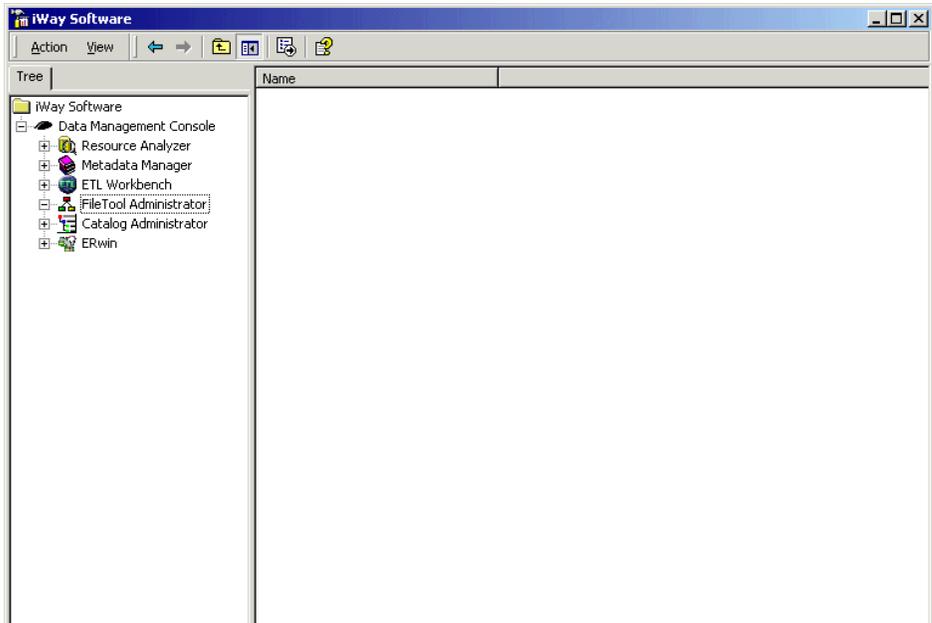
Procedure How to Access the Data Management Console

To launch the iWay Data Management Console from the Start Menu:

1. Select *Programs*.
2. Select *Data Management Administration Tools*.

3. Click *Data Management Console*.

The iWay Data Management Console opens:



Note: As you click different snap-ins in the console tree, the contents of the details pane change.

Registering the Servers

You must register any servers you want to administer before you can use the FileTool Administrator.

Procedure How to Register Servers

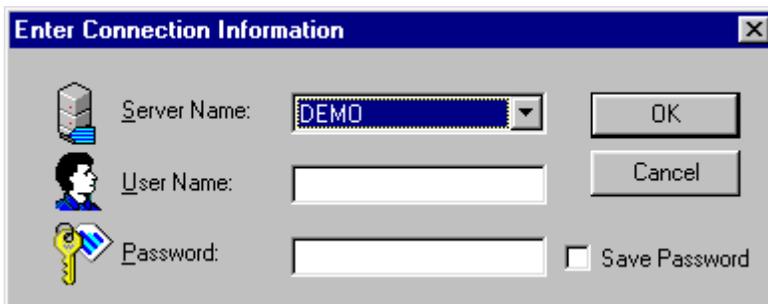
1. Right-click the FileTool Administrator.
2. Select *Register Server* from the context menu.
3. Select the appropriate server from the drop-down list.
4. Enter a valid user ID and password.
5. Click *Save Password* if you do not want to enter your password each time you reconnect.
6. Click *OK*.

Once you have completed the registration, you can connect to the server and begin your administration tasks.

Procedure How to Connect to a Server

1. Expand the FileTool Administrator to display registered servers.
2. Right-click a server and select *Connect* from the context menu.

The Enter Connection Information window displays:



The following table describes the fields on the Enter Connection Information window.

Field	Description
Server Name	Server you choose to connect to.
User Name	User ID to connect to the server.
Password	User password to connect to the server

If the server has security enabled, you need to enter the User Name and Password for the chosen server.

3. Click *Save Password* if you do not want to enter your password each time you reconnect.
4. Click *OK* to continue.

The FileTool Administrator objects display.

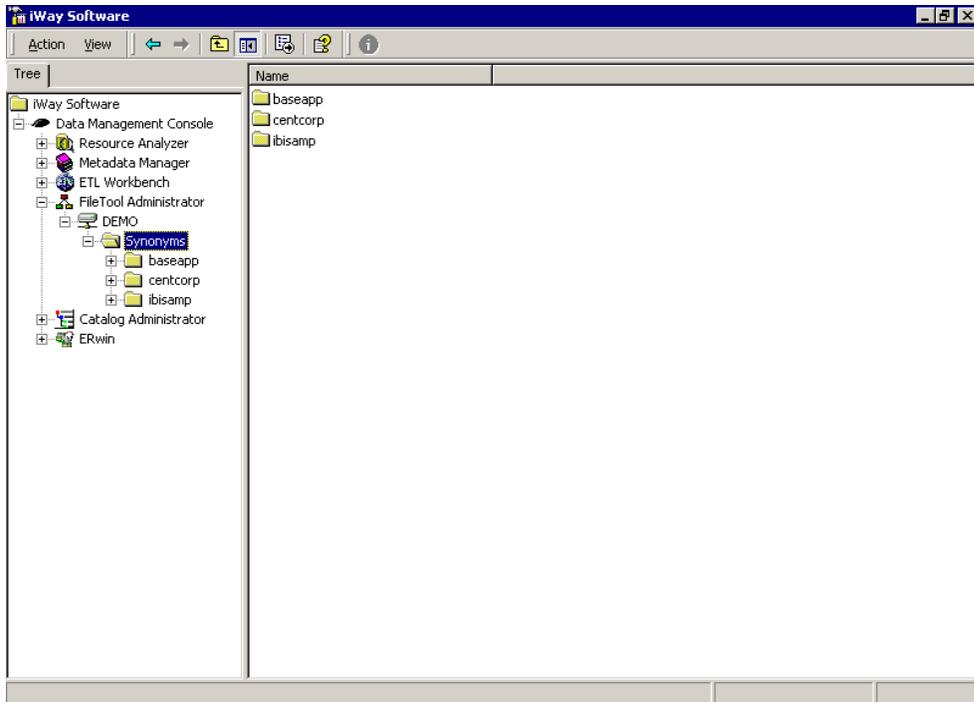
5. Repeat steps 1 through 5 to connect to more than one server at a time.

Procedure **How to Disconnect From a Server**

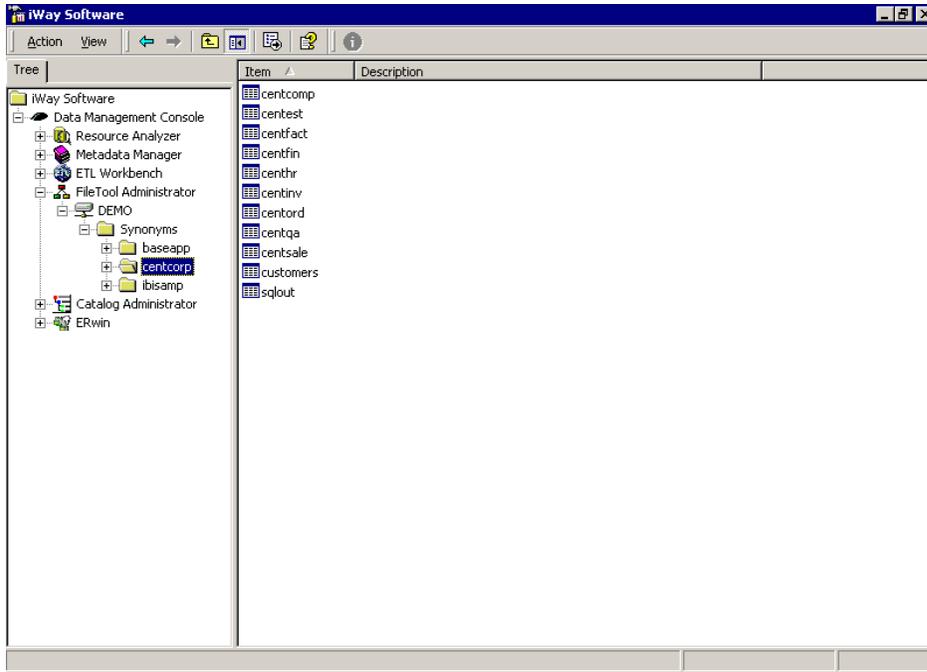
1. Right click the server from which you want to disconnect.
2. From the Context menu select *Disconnect*.
3. To exit the Data Management Console choose *Exit* from the Console menu.

FileTool Administrator Object

After entering the user ID and the password for the server, the FileTool Administrator object displays. Click on the Synonyms object to display a list of application directories.



Clicking on an application directory displays the synonyms in that application directory.

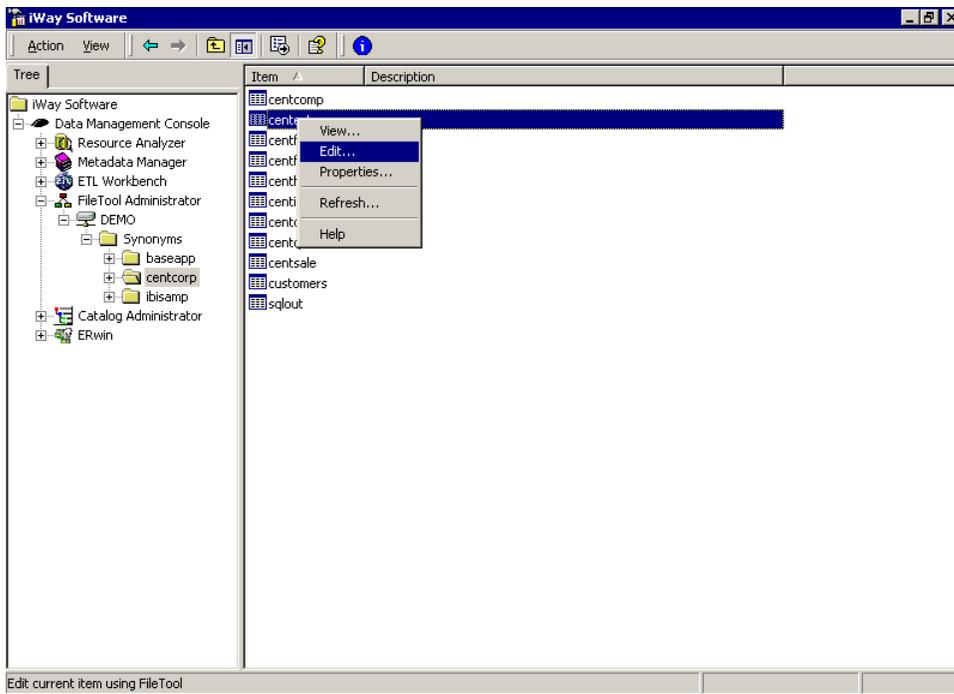


Procedure How to Select the Context Sensitive Menu Options

1. Expand the *Synonyms* object.
2. Click on an application directory. The file description for that application directory displays in the right pane.

- In the right pane, right-click on a synonym.

The context menu opens:



The following table describes the context menu's options and their functions.

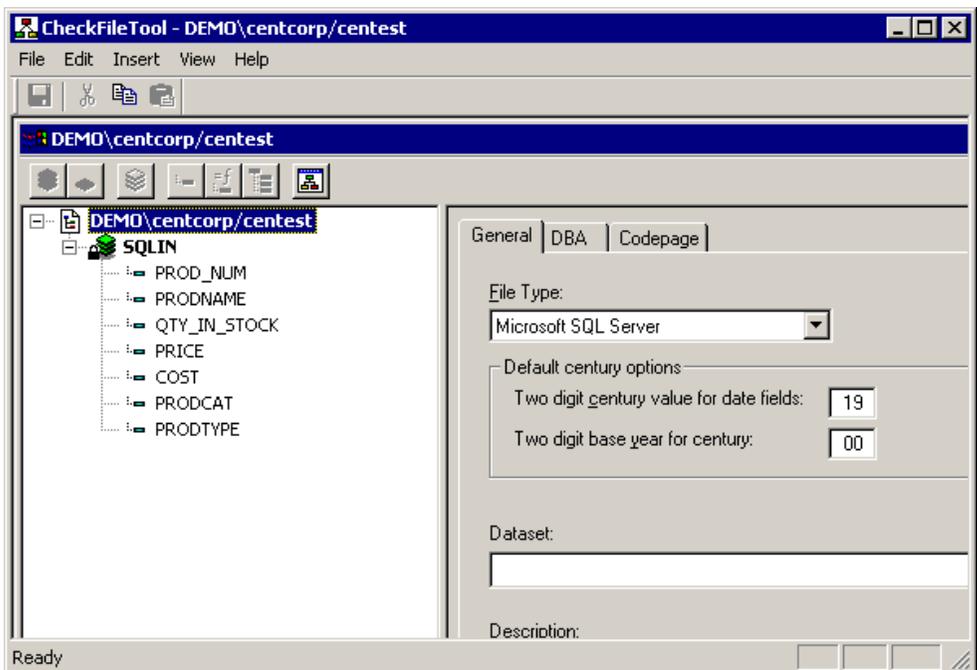
Options	Function
View	Allows you to view the Master and Access files that comprise a synonym.
Edit	Allows you to edit the file description by starting the Master File Editor.
Properties	Displays the attributes of the synonym.
Refresh	Refreshes the list of synonyms from the server.

The following table describes the toolbar and their functions.

Button	Function
	Metadata Properties. Displays metadata about synonyms. Note: This button is inactive until you select a synonym.
	Help. Accesses general background and troubleshooting information about the Microsoft Management Console.

Procedure **How to Edit a File Description**

1. Expand the *Synonyms* object.
2. Click on an application directory. The file descriptions for that application directory display in the right pane.
3. Right-click on a file description and select *Edit* from the context menu that displays. The Master File Editor is invoked.



Changing the Type of Data Source You Are Describing

You can change the type of data source you wish to describe by choosing an abbreviation for the data source type—for example, FOC represents a FOCUS data source and SQLORA represents an Oracle table.

Procedure How to Choose a Data Source Type

1. In the General tab, select a data source type from the drop-down list to identify the type of data source you are using.
2. Select *Save* from the File menu.

Reference Supported Data Source Types and Suffixes

Data Source Type	Suffix
Adabas	ADBSIN
Comma Delimited (not supported for Maintain)	COM
dBase	DBASE
EDA	EDA
Fixed Format	FIX
FOCUS	FOC
FUSION	FUSION
Hyperion ESSBase (not supported for Maintain)	ESSBASE
IBM DB2	SQL Also supports DB2, SQL400, SQLDS, SQLDBM
Informix	SQLINF
Microsoft Access (not supported for Maintain)	SQLMAC
Microsoft SQL Server	SQLMSS
MS SQL Server OLAP Services (not supported for Maintain)	MSOLAP

Data Source Type	Suffix
ODBC	SQLODBC
Oracle	SQLORA
Sybase	SQLSYB
Tab Delimited	(TABT)
Teradata	(SQLDBC)

Reference Master File Tab: General (File Level)

The screenshot shows a dialog box with three tabs: 'General', 'DBA', and 'Codepage'. The 'General' tab is active. It contains a 'File Type:' dropdown menu with 'Focus' selected. Below this is a section titled 'Default century options' containing two input fields: 'Two digit century value for date fields' with the value '20' and 'Two digit base year for century' with the value '00'. At the bottom, there is a 'Description:' label followed by an empty text input field.

When you select a data source in the left (Master File) frame, the General tab has the following fields/options:

File Type

Choose the type of data source you will be describing. For details, see *Changing the Type of Data Source You Are Describing* on page 4-10.

Default century options

Together these options define a range of 100 years and control the century value for all date fields in the data source.

Choose a century value to represent 1900 or 2000.

Choose a base year that represents the lowest year to which the century option applies.

The defaults are 19 and 00, respectively.

For more information, see *Assigning Century Values in a Master File* on page 4-12. See *Master File Tab: General (File Level)* on page 4-11 for related information.

Description

Type a descriptive name for the Master File. This name appears as the REMARK field when you view the Master File as text.

Assigning Century Values in a Master File

The Master File Editor enables you to assign century options—the two-digit century value and the two-digit base years—to control the century value in a Master File

The century value and base year together define a range of 100 years:

- Century value specifies a two-digit century number.
- Base year indicates the lowest year to which this century applies.

For example, if the century value is 19 and the base year is 80, year values from 80 through 99 are interpreted as 1980 through 1999, and year values from 00 through 79 are interpreted as 2000 through 2079.

If you are satisfied with the century value and the base year default values (19 and 00, respectively), you can omit one or both of these options from the Master File.

You can set century default options for the Master File at the file or field levels. A century value setting at the field level will override a century value setting at the file level. See *Master File Tab: General (File Level)* on page 4-11 and *Master File Tab: General (Field Level)* on page 4-20.

Procedure How to Set Century Values for a Master File at the File Level

1. Select the file name in the Master File hierarchy (left frame).
2. In the General tab (File Level), choose a century value to represent 1900 or 2000. The default is 19.
3. Choose a base year value to represent the lowest year to which the century value applies. The default is 00.

Procedure **How to Set Century Values for a Master File at the Field Level**

1. Select a field in the Master File hierarchy (left pane).
2. In the General tab (Field level), select *Date format*.
3. Choose a century value to represent 1900 or 2000. The default is 19.
4. Choose a base year value to represent the lowest year to which the century value applies. The default is 00.

Editing the Segments in a Master File

A segment is a group of fields that are related to one another. Each segment has a unique name and each can have its own key field(s).

Procedure **How to Delete a Segment**

Right-click the segment, then select *Delete*.

Note: You cannot delete a root segment.

Reference **Master File Tab: General (Segment Level)**

The screenshot shows a dialog box titled "General" with the following fields and options:

- Segment Name:** A text box containing "ORIGIN".
- Encrypt:** An unchecked checkbox.
- Segment Type:** A dropdown menu currently showing "Root segment".
- Sorting:** A section containing:
 - Number of key fields:** A text box containing "1".
 - Sort records in ascending order:** A selected radio button.
 - Sort records in descending order:** An unselected radio button.
 - Do not sort records:** An unselected radio button.

When a segment is selected in the left (Master File) frame, the General tab has the following fields/options:

Segment Name

Assign a name of up to 8 characters to the segment, using uppercase characters. All characters and digits are permitted, except embedded blanks and special characters.

Encrypt

Check this box to scramble field values in the current segment in order to protect it from unauthorized examination.

Note: You must assign a DBA password to the file before setting the Encrypt option on. For details, see *How to Encrypt a Segment* on page 4-41. You must then turn the Encrypt option on before adding any records. If you add a record to a segment before setting the Encrypt option on, that value will not be encrypted.

Once a segment is encrypted, you can remove encryption only if you remove the segment and recreate it without turning on the Encrypt option.

Tip: Because there is a loss of processing efficiency when data is encrypted, encryption should be used selectively

Segment Type

Identify the segment as:

- **Root**, the top segment in the data source hierarchy. (For a relational data source this is the only segment.)
- **Parent**, a segment that can have descendant segments with one or more related records.
- **Unique**, a segment with a one-to-one relationship to its parent, and no descendant segments.

You can change the type of a parent or unique segment (if necessary).

Sorting

Records are sorted in a data source by key fields. A key uniquely identifies each segment instance. For example, no two employees can have the same employee ID number, so you can use that field as the key. A segment instance can have more than one field that makes up the key; that is, two or more field values may be used to distinguish records. Key fields appear before all other fields in a segment and are indicated by a key symbol.

Sorting criteria are required for a parent segment, but not for a unique segment. For a parent segment sorting is based on the key. If you specify more than one key field in the key, records are sorted by the first key field, then the second, and so on.

- First, enter the number of key fields that you want to use for sorting.
- Then indicate whether you want to sort records in ascending or descending order, or choose *Do not sort records*. Ascending is the default.

Storing a Segment in a Different Location

By default, all of the segments in a FOCUS data source are stored in one physical file. Optionally, you can designate one or more segments to be stored in a separate physical file called the Location file

Note: This feature only applies to Master Files for FOCUS data sources

You store segments in a separate file for two reasons:

- **To apply security.** You can store data in separate physical files to show only the segments needed for a report. Unreferenced segments can be stored in a separate file and archived, but must be restored before they are accessed in a FOCUS request. Alternately, they can be kept on another disk, where separate security can be arranged. In some situations, the separation of the segments into different files allows different disk drives to be used.

Note: Divided data sources require more careful file maintenance. You have to be especially careful about procedures that are performed separately on these files, such as backups. For example, if you perform backups on Tuesday and Thursday for two related files, and you restore the FOCUS structure using the Tuesday backup for one half and the Thursday backup for the other, FOCUS has no way of detecting this discrepancy

- **To increase the size of a FOCUS data source beyond the normal maximum of 1 gigabyte.** You can split the data source into several physical files, each one subject to the 1 gigabyte page maximum.

Procedure How to Store a Segment in a Different Location

1. Select the segment that you want to store in a separate location.
2. In the General tab, type the name of the location file in the Location text box. This name can be up to 8 characters long.

Repeat steps 1 and 2 to store additional segments.

Tip: Before completing this procedure we suggest that you read *Usage Notes for Storing Segments in Different Locations* on page 4-16.

Reference Usage Notes for Storing Segments in Different Locations

- The name of the location file can be either the file name of a FOCUS data source, or a name assigned by the USE command.
- The location must be changed if the location file name or the name assigned by a USE command is changed.
- You can name multiple location files in a Master File. You can also store different segments in the same location file.
- Descendant segments will be stored in the same location file as a parent segment unless different location files are included in their segment declarations.
- For reporting, the location file does not need to be available to FOCUS at all times. FOCUS can still access the data in other segments. However, to include data from the location file in the report, both the host data file and the location file must be available. FOCUS can only access the data in the location file through the information stored in the host file. For data maintenance, location files must be available to FOCUS.
- The number of different location segments and text location files you can specify is limited to a maximum of 64 entries.

Describing Repeating Fields in a Segment

In a Master File, you can describe multiply occurring records for free-format (comma-delimited) and fixed-format sequential data sources. This is accomplished by creating a descending segment and defining the occurring fields in the descendent segment of the parent segment. You can have one or many descending segments depending on the structure of the data

For instance, consider a library file that contains the information for two copies of *The Sun Also Rises*, one hardcover (\$17.95) and one paperback (\$5.25). There are two values for binding and price, both corresponding to the same book. In the Master File, the information that occurs only once—book information: the publisher's number, author, and title—is placed in one segment and the information that occurs several times in relation to this information—binding and price—is placed in a descendant segment. Similarly, information that occurs several times in relation to the descendant segment, such as an individual serial number for each copy of the book, is placed in a segment that is a descendant of the first descendant segment.

Since the root segment is the highest-level segment in a Master File, all segments below it are considered parent segments. Thus, you are able to describe multiply occurring records for any segment below the root segment.

There are two basic types of multiply occurring records: parallel sets and nested sets. Parallel sets of repeating fields are those that have nothing to do with one another (that is, they have no parent-child or logical relationship). Nested sets of repeating fields are those that, in some way, depend on one another.

Maintain users should see the WebFOCUS Maintain documentation for more information and detailed examples on describing repeating fields.

Procedure How to Describe Repeating Fields in a Segment

1. In a free-format (comma-delimited) or fixed-format Master File, select the segment that contains the repeating fields in the Master File hierarchy.

The General and Occurs tabs for that segment display. Note that if you select the root segment, the Occurs tab does not appear because this segment is the highest-level segment in a Master File.

2. Select the Occurs tab and describe the repeating fields by choosing one of the following options:
 - **Value.** Type a value from 1-4095. Optionally, you can specify the position by selecting the field in which the records reside from the drop-down list. This field list is derived from the parent segment.
 - **Fieldname.** Select the field that contains the multiply occurring fields from the drop-down list. This field list is derived from the parent segment.
 - **Variable.** Indicates that the number of occurrences varies from record to record.

For information that will help you choose an option, see *Master File Tab: OCCURS (Segment Level)* on page 4-18.

Reference Master File Tab: OCCURS (Segment Level)

The screenshot shows a software window with two tabs: 'General' and 'Occurs'. The 'Occurs' tab is active. It contains a 'Parent Segment' text box with the value 'MOVINFO'. Below this is a section titled 'Occurs' with three radio button options: 'Value (1-4095)' (selected), 'Fieldname', and 'VARIABLE'. The 'Value (1-4095)' option has a text input field containing the number '3'. The 'Fieldname' option has a dropdown menu. Below the 'Occurs' section is a 'Position:' label followed by a dropdown menu.

When a segment is selected in the left (Master File) frame, the Occurs tab has the following fields/options:

Parent Segment

The segment that is a part of a higher segment (referred to as the “parent” segment) and can have descendants of its own.

Occurs

Describe the repeating field by selecting one of the following options:

- **Value (1-4095).** Type a value from 1-4095. Optionally, you can specify the position where a field occurs in a record, if it is not at the end, by selecting the field from the drop-down list. See *Position*.
- **Fieldname.** Names an integer field in the parent segment that is a counter containing the number of occurrences of the descendant segment. Select the field that contains the multiply occurring fields from the drop-down list. This field list is derived from the parent segment.
- **Variable.** Indicates that the number of occurrences varies from record to record. The number of occurrences is computed from the record length (that is, if the field lengths for the segment add up to 40, and 120 characters are read in, it means there are three occurrences).

Position

When the Value (1-4095) field is selected, this field is enabled. It is derived from the parent segment and is an optional function. It is used to describe a structure in which multiply occurring fields with an established number of occurrences are located in the middle of the record. You describe the data source as a hierarchical structure, made up of a parent segment and at least one descendent segment that contains the multiply occurring fields. The parent segment is made up of whatever singly occurring fields are in the record, as well as an alphanumeric field that appears where the multiply occurring fields appear in the record. The alphanumeric field is a dummy field that is the exact length of the combined multiply occurring fields. For example, if you have four occurrences of an eight-character field, the length of the dummy field in the parent segment will be 32 characters.

Note: When different types of records are combined in one data source, each record type can contain only one segment defined as *variable*. It may have descendants (if it contains a nested group), but it may not be followed by any other segment with the same parent—that is, there can be no other segments to its right in the hierarchical data structure. This restriction is necessary to ensure that data in the record is interpreted unambiguously by FOCUS.

Editing the Fields in a Segment

When you edit a field to a segment, the Master File Editor displays four properties tabs in the right pane, in which you can update the information that defines the field. The tabs are:

- **General.** Edits the field characteristics: the field name, field alias, field format (alphanumeric, numeric, or date), if the field is indexed, and if the field allows missing data.
- **Display.** Edits supplementary field information for reporting, such as title, help message, and description.
- **Accept.** Edits or adds validation criteria (acceptable values) for a field. Validation criteria restrict the values a user can enter for the field.
- **OLAP.** Supplies a dimension name to be associated with fields. This process OLAP-enables the Master File. (This feature is not used in data maintenance applications.)

Procedure How to Delete a Field From a Segment

Right-click the field, then select *Delete*.

Reference Master File Tab: General (Field Level)

The screenshot shows a dialog box with four tabs: 'General', 'Display', 'Accept', and 'OLAP'. The 'General' tab is active. It contains the following fields and options:

- Field Name:** A text box containing 'GL_ACCOUNT' and a checked checkbox for 'Index (Standard B-tree)'.
- Field Alias:** A text box containing 'GLACCT'.
- Field Property:** A dropdown menu with 'PARENT_OF' selected.
- Field Reference:** A dropdown menu with '<None>' selected.
- Format:** A section with radio buttons for 'Alphanumeric', 'Floating Point', 'Integer', 'Decimal', 'Packed', 'Date/Time', 'Text', 'CLOB', and 'VarChar'. The 'Alphanumeric' option is selected, and a 'Length' text box next to it contains the number '7'.
- Allow Missing Data:** A checkbox labeled 'Allow Missing Data (do not substitute blanks or zeros)' which is currently unchecked.

When a field is selected in the left (Master File) frame, the General tab has the following fields/options:

Field Name

Enter a unique name (1-66 characters) in uppercase characters. The first character must be a letter. Do not use embedded blanks or special characters if you wish to include the field in a calculation. This is a required entry.

Field Alias

Enter a brief alternate name that you can use in requests as a synonym for the field name to minimize typing. (Length and format rules apply to aliases.) This is an optional entry.

If you create a report, the field name appears as a column heading unless you have specified an alternate title for the field. Aliases cannot be used as column titles.

Note: Aliases are not available for virtual fields.

Index (Standard B-tree) - (For FOCUS databases)

You can index the values of a field to enhance data retrieval performance. To do so, select the Index check box when you add a field and *before* you add the data. An index is an internally stored and maintained table of data values and locations that enhance the performance of data retrieval. A Master File can have several associated indexes, but the combined total of indices and segments cannot exceed 64.

This feature is not available for virtual fields.

Format

The field Format option is a required entry. It enables you to assign a format to the field based on the values the field will hold. The options are: Alphanumeric, Numeric (Floating Point, Integer, Decimal, Packed), and Date.

The input fields in the window adjust based on the format you select:

- For fields with Numeric formats, you can assign display options that determine how the field will be displayed in reports.
- For fields with a Date format, you assign display options that determine how the field will be displayed in reports. You can also assign century values to the date field. For more information, see *Assigning Century Values in a Master File* on page 4-12.

Length (1-256)

Indicate the maximum number of positions an alphanumeric or numeric field can contain.

Allow Missing Data (do not substitute blanks or zeros)

If a segment instance exists but no data has been entered into one of its fields, that field has no value. This absence of data is represented as a null value or missing data. You use the Allow Missing Data check box to request the display of a missing data value for a field when read from a data source or written to a data source.

Not supported for virtual fields. See *Master File Tab: Missing (Virtual Field Level)* on page 4-28.

Reference Master File Tab: Display (Field Level)

The image shows a software interface with four tabs: 'General', 'Display', 'Accept', and 'OLAP'. The 'Display' tab is active. Below the tabs are three text input fields. The first is labeled 'Column Title:' and is empty. The second is labeled 'Help Message:' and is empty. The third is labeled 'Description:' and is empty.

This tab provides optional parameters that you can supply for a field. These parameters make it easier for you to describe the field to users. They affect reports, not data maintenance transactions.

When a field is selected in the left (Master File) frame, the Display tab has the following fields/options:

Column Title

Optional. Enter a title of up to 64 characters. This entry will appear as the column title on reports instead of the field name.

Help Message

Optional. Enter a line of text (up to 78 characters) to provide additional information about a field on a form.

Description

Optional. Enter descriptive text (up to 43 characters) to identify the data field. It can be displayed in Fields lists and on the status bar.

Reference Master File Tab: Accept (Field Level)

The screenshot shows a dialog box with four tabs: 'General', 'Display', 'Accept', and 'OLAP'. The 'Accept' tab is active. It is divided into two main sections: 'Type' and 'Options'. Under 'Type', there are four radio button options: 'None' (which is selected), 'LIST of values', 'RANGE of values', and 'FIND values in file'. The 'Options' section is currently empty.

You can control the acceptable values for a field by setting validation criteria. Since data fields can be addressed by several procedures, setting validation criteria in a Master File eliminates the need to provide lists in each separate procedure.

You can set validation criteria for Maintain and MODIFY procedures and for OLAP-enabled Master Files.

Within an OLAP-enabled Master File, validation criteria enable you to:

- Specify a list of acceptable data values for an OLAP-enabled field.
- Specify a range of acceptable data values for an OLAP-enabled field.
- Specify acceptable data values that match values contained in an external flat data source (ddname option).

If you set validation criteria for a field, your application will allow only certain incoming values for the field when it is displayed on a form. If a user enters an unacceptable value for the field, a list of acceptable values will be displayed from which the user can make a selection.

The Accept tab displays the following options for setting validation criteria:

Type

None

Indicates that you do not wish to set validation criteria. A user can enter any value within the limitations of the field's format. This is the default setting.

LIST of values

Enter a list of valid values. A user can only enter a value from this list. You can also use this list to populate radio buttons, combo boxes, and list boxes.

RANGE of values

Enter a range of valid values (for example, a range for an integer might be 100-200). A user can only enter a value within the defined range.

FIND values in file

Supply file and field names that instruct FOCUS where to search for a data source and for a list of acceptable values. You supply the field name of the data field for which the validation criteria are being assigned, the file name of the target FOCUS data source where the field can be found, and the field name of the target data field that contains the validation criteria.

Note: Find is only available for FOCUS data sources and does not apply to OLAP-enabled Master Files

OLAP-enabling a Master File

Master Files can be modified to support Online Analytical Processing (OLAP). OLAP enables you to drill down or roll up on hierarchical data, pivot fields from columns to rows (or vice versa), and slice-and-dice information by filtering or querying data sources based on specified criteria thresholds.

You OLAP-enable the Master File by creating dimension(s) at the field level and associating fields with each dimension. In addition, you can specify acceptable values for each dimension member (field).

Reference Master File Tab: OLAP (Field Level)

General | Display | Accept | **OLAP**

Please specify either a dimension name or field within a dimension. The naming convention follows the same rules as a FOCUS field name.

A field within a dimension defines a hierarchical relationship among additional members to be included in a given dimension.

NOTE: A given field may participate in only one dimension and two fields cannot reference the same higher level field.

Within:

Make root dimension

When a field is selected in the left (Master File) frame, the OLAP tab has the following fields/options for specifying a dimension:

Within

Is the name of a field to be included in a dimension.

Make root dimension

Specifies a field as the root dimension.

Creating a Dimension in a Master File

In order for you to OLAP-enable a Master File, you must create a dimension. A dimension is a group or list of related fields, called *elements*. For example, a typical hierarchy of sales regions could be defined in a Master File as the GEOGRAPHY dimension and could include the fields (in descending order) Region, State, and City. Region, the highest level in this hierarchy, would contain a list of all available regions within GEOGRAPHY. State, the second highest level in the hierarchy, would contain a list of all available states within region, and so on. Dimensions can be defined in the Master File for any supported data source.

A combination, or matrix, of two or more dimensional hierarchies in an OLAP-enabled data source is called “multi-dimensional.” For example, although products are sold within states they need not be grouped in the same dimension as states. Rather, the elements Product, Category, and Product Name would more commonly be grouped in a dimension called PRODUCT. State would be a member of the GEOGRAPHY dimension that might also include Region and City. Then, these dimensions are combined in a matrix so that the intersections of their criteria provide specific values—for example, sales for coffee in the Northeast region.

Procedure **How to Create a Root Dimension in a Master File**

1. Select a field in the Master File hierarchy (left pane), then click the *OLAP* tab.
2. Type the dimension name in the Within input box, then click the *Make root dimension* check box. Note that the dimension name must start with a letter and can contain up to 66 characters, which can be any combination of letters, digits, underscores, or periods. Avoid using special characters and embedded blanks.

You can now associate fields to the dimension. For details, see *Associating Fields to a Root Dimension* on page 4-26.

Note: When you type the dimension name, the dimension is automatically created. To view the change in the Master File, right-click the root segment and choose *Show Master Text* from the shortcut menu or open the Master File in the text editor.

Associating Fields to a Root Dimension

To OLAP-enable a Master File, you must associate fields with the dimension you created. This association identifies the fields as part of the dimension. Note that a field may be associated to only one dimension.

If Master Files have been joined, you can associate a field from one Master File to a dimension in the other. The field from the joined Master File will be active in the dimension when the join is run.

You can specify acceptable values for each field you associate with a dimension using the Accept tab. For details, see *Master File Tab: Accept (Field Level)* on page 4-23.

Procedure **How to Associate a Field to a Root Dimension**

1. Select the field in the Master File hierarchy (left pane) to which you want to associate to a dimension, then click the *OLAP* tab.
2. In the Within input box, type the name of the dimension to which the field should be associated.

Note: When you type the dimension name, the dimension is automatically created. To view the change in the Master File, right-click the root segment and choose *Show Master Text* from the pop-up menu or open the Master File in the text editor

Adding Virtual Fields to a Segment

A virtual field is a field whose value is not stored in the data source but can be calculated from the data that is there. You can create a virtual field in your Master File. The field is available whenever a user accesses the corresponding data source. This feature is convenient when you want to use a virtual field in many different procedures that use the same data source; it saves you the effort of defining the field in each procedure.

The procedure for adding a virtual field to a Master File is similar to the procedure used to add any field. For both, you must specify a field name and a field format. However, the difference between describing a virtual field and a regular field is that you must define the field by using at least one other *real* field that belongs to the same segment. You use this *real* field to build an expression that defines the values a virtual field will hold. An expression enables you to combine fields, constants, pre-defined functions, and operators into one statement that produces a single value.

Procedure How to Describe a Virtual Field in a Segment

1. In the Master File hierarchy (left pane), select the segment in which you want to add a virtual field, then perform one of the following actions:
 - Right-click and select *New*, then choose *Defined field* from the cascading menu.
 - Click the *New Defined Field* button on the toolbar.
 - Select *Defined field* from the Insert menu.

The General, Display, and Missing Data tabs open in the right pane.

2. In the General tab (Field level):
 - a. Type a name for the field, using uppercase characters, in the Field Name input box (required).
 - b. Type the syntax for the expression in the Expression input box (required).

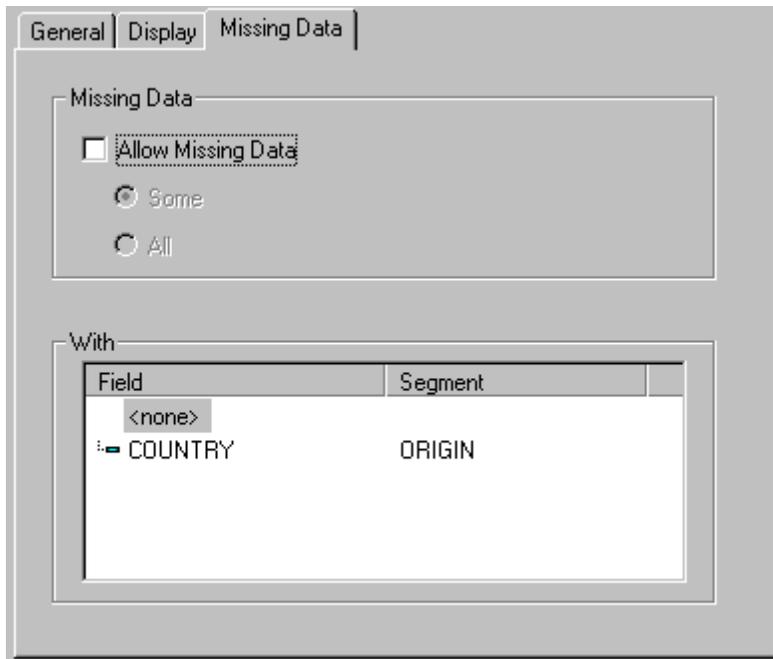
or

Click the *Assist* button to create an expression using the Define Expression Assistant. For details, see *Defining Expressions for Virtual Fields* on page 4-29.

The expression will display in the Expression input box. For additional information, see the *Creating Reports With Graphical Tools* manual.

- c. Select a format or data type, then specify the length, the decimal places (if applicable), and any display options for the field. The data type (numeric, alphanumeric, date), field length and, for some numeric formats, decimal places are required parameters; display options are not. You can also assign century values to virtual fields in Master Files.
3. Click the *Display* tab if you wish to include a column title and help message for the field. Type the text in the appropriate input box. See *Master File Tab: Display (Field Level)* on page 4-22
4. Click the *Missing Data* tab if you want to enter a missing value for the field. See *Master File Tab: Missing (Virtual Field Level)* on page 4-28.
5. Click the *OLAP* tab to create a dimension and associate it to the field you selected. After you create a dimension you can associate other fields to it. See *Master File Tab: OLAP (Field Level)* on page 4-25.

Reference Master File Tab: Missing (Virtual Field Level)



When a virtual field is selected in the left (Master File) frame, a Missing Data tab is available with the following fields/options:

Allow Missing Data

Sets the default value for missing data to null for a virtual field. When you activate this option, Developer Studio or Maintain can distinguish a null value from an intentionally entered blank or zero. When this option is selected, if a field with a missing value is read, that value is ignored when an aggregating calculation, such as averaging, is performed. When you select *Allow Missing Data* the following associated options are available:

Some

Indicates that if *at least one* field in the expression has a value, the virtual field has a value (the fields missing values are evaluated as 0 or blank). If all of the fields in the expression are missing values, the virtual field is missing its value. This is the default.

All

Indicates that if all the fields in the expression have values, the virtual field has a value. If at least one field in the expression is missing a value, the virtual field is missing its value.

With

Field

Associates the virtual field with a data source field in a specific segment.

Segment

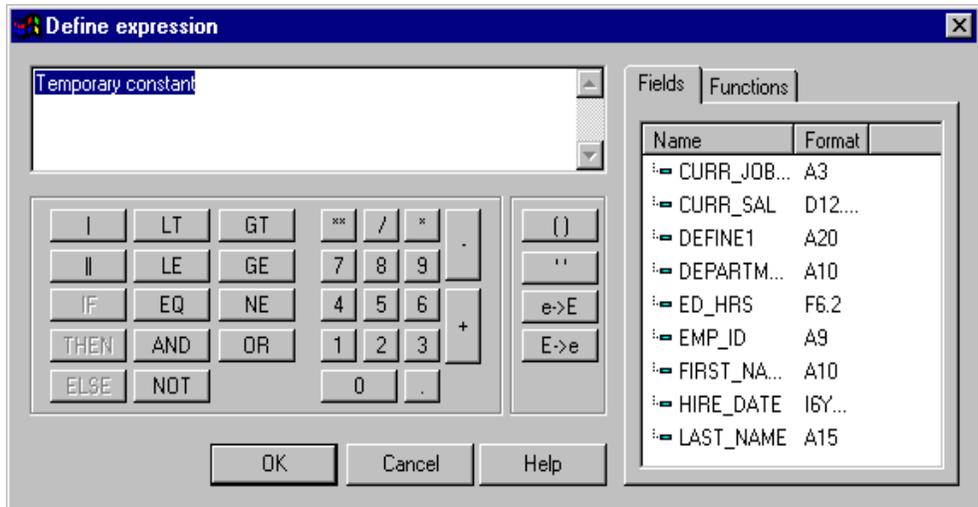
Identifies the segment that contains the field with which the virtual field is associated.

Defining Expressions for Virtual Fields

You can type the syntax for the expression directly into an input box in the General tab, or you can access the Define Expression Assistant, which will help you build the field's expression.

Reference Define Expression Dialog Box

The Define Expression dialog box is used by the Master File Editor to create expressions for virtual fields. The dialog box displays a list of available data source fields, functions, and logical and mathematical operators you can use to build an expression.



Expression box

Location for typing an expression. You can add data source fields from the Fields tab, functions from the Functions tab, and numbers and operators from the calculator as you type.

Calculator

Provides numbers and operators that you can use to create expressions.

Fields tab

Lists the data source fields that you can use in creating an expression.

Functions tab

A function is a program that returns a value. This tab lists the built-in functions that you can use to derive the value of a temporary field.

Adding Group Fields to a Segment

You can assign a unique name to multiple fields to create a group field. A group field is created by two or more alphanumeric fields, physically next to each other. A group field provides an efficient means for grouping similar or logically connected fields that will be accessed as a single unit, but do not warrant a separate segment.

Procedure How to Add a Group Field to a Segment

1. In the Master File hierarchy (left pane), select the segment in which you want to add a group field and then perform one of the following actions:
 - Right-click and select *New*, then choose *Group Field* from the cascading menu.
 - Click the *New Group Field* button on the toolbar.
 - Select *Group Field* from the Insert menu.

The General and Display tabs appear in the right pane.

2. In the General tab, type a name for the group field in the Group Name input box (required).

Notice that the default format is A20 and the field names in the group appear in the Fields Within Group box at the bottom of the tab window.

3. Click the Display tab to include a column title, help message, or a description for the field. To include any of these characteristics, type the text in the appropriate input box.
4. Click a field in the group field hierarchy and supply the required information in the General, Display, Accept, and Maxvalue tab (Fusion only) windows.

Once you have supplied information for the required parameters and any optional parameters for each field, the group field definition is complete. You can now add other fields (or group fields) to the current segment, add fields to another segment, or create a new segment.

Procedure How to Add a New Field to a Group Field

Click the group field to which you want to add a new field and perform one of the following:

- Right-click and select *New*, then choose *Field* from the cascading menu.
- Click the *New Field* button on the toolbar.
- Select *Field* from the Insert menu.

The General, Display, Accept, and OLAP tabs display in the right pane. Supply the required information in each of the tab windows.

Procedure How to Add an Existing Field to a Group Field

1. Click the field you want to add to the group field.
2. While holding the left mouse button down, drag the field and drop it on the group field name.

The field is added to the group field.

Procedure How to Delete a Group Field From a Segment

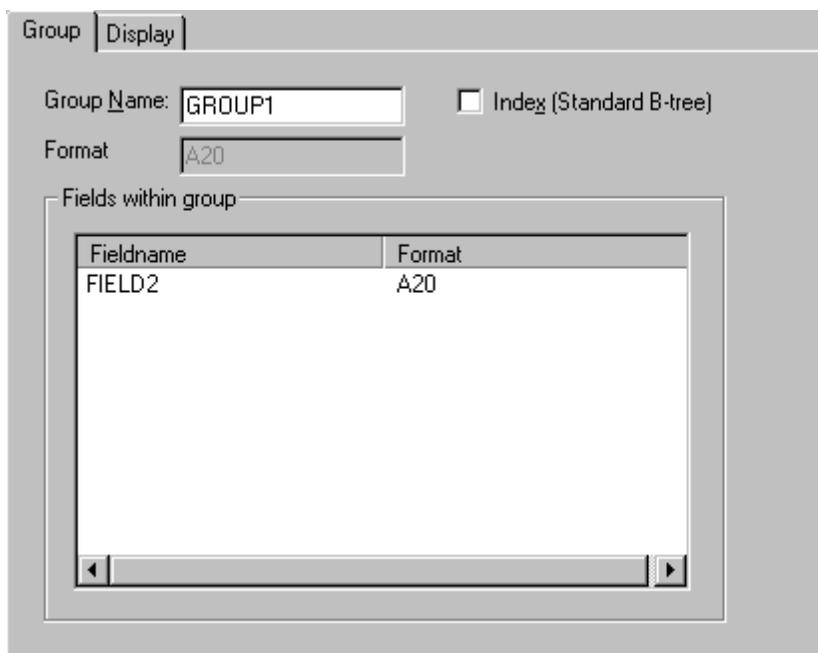
Right-click the group field, then select *Delete*.

Procedure How to Delete a Field From a Group Field

Right-click the field, then select *Delete*.

Reference Master File Editor: Group Tab

The Group tab enables you to define a group field.



This dialog box contains the following options:

Group Name

Is the name of the group field.

Index (Standard B-tree)

Specifies that you wish to index the values of this field to enhance data retrieval performance. For more information, see *Master File Tab: General (Field Level)* on page 4-20.

Format

Contains the format for the group field. Since the group field is made by concatenating together several other fields, the Master File Editor determines what this format needs to be. For example, if the group field has two alphanumeric fields in it, each 20 characters long (A20), then the group field must be alphanumeric and 40 characters long (A40). The group field is always alphanumeric, regardless of what the fields that make it up are.

Fields within group

Contains the names and formats of the fields in the group field.

Creating a Cross-Reference

A cross-reference identifies matching instances from two data sources. You can create a cross-reference between two separate data sources with corresponding data types and values in one or more fields. Once the cross-reference is created, matching data from the second (target) file will be retrieved when a segment instance from the first (source) file is retrieved.

A Cross-reference wizard accessed from the Master File Editor guides you through the process, in which you must select the host field, the target field, and the type of cross-reference you want.

There are two types of cross-references that you can create: one-to-one or one-to-many:

- A one-to-one cross-reference creates a unique relationship between the source and target segments, meaning any instance of the source segment can have at most one matching instance in the target segment. If multiple matching instances exist in the target file, only one instance is retrieved.
- With a one-to-many cross-reference, a non-unique relationship is created between the source segment and target segment resulting in the possibility of multiple matching instances in the target segment.

In addition, the Cross-reference wizard allows you to choose one of the following options:

- **Remembered** to store the locations of all matching target instances in the source data file.
- **Limit to current segment** to restrict the cross-reference to the named target segment; with this option in effect, the entire cross-referenced data source structure is not involved in the logical data source.

Procedure Using the Cross-Reference Wizard

1. Click on the host segment or field in the Master File for which you wish to create a cross-reference.
2. Click  (*New Cross-Reference*) on the Master File Editor toolbar to activate the wizard.
3. If you are creating a cross-reference from a segment, the wizard will ask you to enter your cross-reference specifications in a series of windows.
 - Type or browse for the target file to cross-reference. Select a target field from the Available Target Fields list, then click *Next*.
 - Select the type of cross-reference you would like to create, then click *Next*. Note that two additional segment types (KL and KLU) appear when creating a cross-reference within a cross-reference. For a description of each cross-reference type, see *Master File Tab: General (Cross-reference Segments)* on page 4-35.

or

If you are creating a cross-reference within a cross-reference, the wizard will ask you to choose the type of child cross-reference that you would like to create. Select a Linked segment type and a Linked Segment, then click *Next*.

Tip: If necessary, you can click *Back* to modify your selections.

4. Click *Finish*.

Note: If you are creating a new Master File in the Maintain environment, the New Cross-Reference Wizard button on the toolbar will not be active until you save the Master File on a server.

Reference Master File Tab: General (Cross-reference Segments)

When you create a cross-reference you can view information about that cross-reference when you highlight it.

General

Cross reference file: EDUCFILE

Target field: EMP_ID

Segment Type

Keyed Unique (KU)
 Keyed thru Linkage Unique (KLU)

Keyed Multiple (KM)
 Dynamic Keyed Unique (DKU)

Keyed thru Linkage (KL)
 Dynamic Keyed Multiple (DKM)

Cross reference file

A physical Master File.

Target field

A key field from the cross-reference file that matches a field in your data source.

Keyed Unique (KU)

Indicates that this is a cross-referenced segment joined to the data source using a static join defined in the Master File, and has a one-to-one relationship to the host segment (that is, it is a unique segment).

Keyed Multiple (KM)

Indicates that this is a cross-referenced segment joined to the data source using a static join defined in the Master File, and has a one-to-many relationship to the host segment.

Keyed thru Linkage (KL)

Indicates that this segment is described within a Master File defined join as descending from a KM, KU, DKM, or DKU segment in a cross-referenced data source, and has a one-to-many relationship to its parent.

This segment type is a result of creating a cross-reference within a cross-reference.

Keyed thru Linkage Unique (KLU)

Indicates that this segment is described within a Master File defined join as descending from a KM, KU, DKM, or DKU segment in a cross-referenced data source, and has a one-to-one relationship to its parent (that is, it is a unique segment).

This segment type is a result of creating a cross-reference within a cross-reference.

Dynamic Keyed Unique (DKU)

Indicates that this is a cross-referenced segment joined to the data source using a dynamic join defined in the Master File, and has a one-to-one relationship to the host segment (that is, it is a unique segment).

Dynamic Keyed Multiple (DKM)

Indicates that this is a cross-referenced segment joined to the data source using a dynamic join defined in the Master File, and has a one-to-many relationship to the host segment.

Maintain users should see the WebFOCUS Maintain documentation for additional information on creating cross-references.

Setting Up Security for a Master File

You can secure Master Files on a file-by-file basis. For each data source, security can be maintained at two different levels.

- **Database Administrator Level.** You specify the Database Administrator (DBA) password for the data source. The DBA has unlimited access to the Master File and data source and can set up or change security restrictions for individual users. Only the Database Administrator can encrypt (scramble) or decrypt (unscramble) a data source. For more information, see *Encrypting and Decrypting a Master File* on page 4-40.
- **User Level.** You specify the DBA and user passwords for the data source. The user password represents a user who has access to that data source. When you specify a user password, you must also set at least the type of file access: read, write, read/write, update. Each user's security can be further limited by restricting access to segments, fields, or field values. For more information, see *Restricting Access to Segments, Fields, and Field Values* on page 4-42.

Once a user password has been established, you can apply the same restrictions to multiple users. For more information, see *Applying Security Restrictions for Multiple Users* on page 4-42.

When security is specified, the Database Administrator or user must enter a password to get access to the data source. When the DBA or user no longer has access to the data source, you can delete their security.

Before adding any type of security to a data source, the Database Administrator must be aware of certain DBA guidelines.

Procedure How to Set Up Security for the Database Administrator

1. In the Master File hierarchy (left pane), click the data source path.

The General and DBA tabs open.

2. Click the DBA tab, then type the DBA password in the DBA Password box.

Note: When the password is created and the cursor is in that field, you can right-click and use the edit options to undo, select all, cut, copy, paste, or delete the password.

3. Save the Master File with the DBA password.

Procedure How to Set Up Security for the User

1. Set up security for the Database Administrator.

2. Tab to the Users box, then type the user password.

The File Access, Access Restrictions, and Same Restriction options are activated.

Note: When the password is created and the cursor is in that field, you can right-click and use the edit options to undo, select all, cut, copy, paste, or delete the password

3. Select the type of file access from the File Access group.

4. Select the type of restriction — segment, field, and/or field value — from the Access Restrictions group, then select the type of access for each. For details, see *Restricting Access to Segments, Fields, and Field Values* on page 4-42.

5. Save the Master File with the user password and restrictions.

Reference DBA Guidelines

You can ensure that the security restrictions you place on Master Files are correct by adhering to these guidelines.

- Every file with access limits must have a DBA password.
- No segment, field, or field value restrictions may be specified at the Database Administrator level. The Database Administrator should have unlimited access to the data source and all cross-referenced data sources.
- Once security restrictions have been applied, the Database Administrator should conduct thorough testing of every restriction before the data source is used. It is particularly important to check field values to make sure they do not contain errors. If they are in error, user access to the fields' data will be unnecessarily restricted.
- All groups of cross-referenced data sources must have the same security restrictions.
- You must have a DBA password to encrypt and decrypt or restrict existing data sources.
- The Database Administrator can change any type of security restriction.
- Access levels effect what fields users can access. The Database Administrator must consider what commands each user will need. If a user does not have access rights, that user will receive an error message.

Reference Master File Tab: DBA (File Level)

The screenshot shows the 'DBA' tab of the Master File Administrator. It includes the following elements:

- DBA Password:** A text input field.
- DBA File:** A text input field.
- Users:** A list box for defining users.
- Same Restriction:** A checkbox labeled 'User Same as:' followed by a dropdown menu.
- File access:** Radio buttons for 'Read', 'Write', 'Read/Write', and 'Update'.
- Access Restrictions:** A table with columns 'Name', 'Access', and 'Value', and buttons for 'Segment', 'Field', and 'Value'.

For detailed information about Data source Administrator (DBA), see *Setting Up Security for a Master File* on page 4-36.

When you select the path in the Master File hierarchy, the DBA tab is available with the following fields/options:

DBA Password

Enter your DBA password of up to 8 characters. This is the password of the DBA who will be creating and maintaining the current data source. The DBA has full access to the data source and the corresponding Master File, controls the access rights of other users, and has encryption privileges. See *Encrypting and Decrypting a Master File* on page 4-40.

DBA File

Enter the name of the Master File that contains your DBA security restrictions. Other Master Files can use the DBA security restrictions in this Master File.

Users

Enter the passwords (up to eight characters) of users to whom access rights will be granted for the current data source.

Same Restriction: User Same as

If multiple users require the same access rights, indicate the user whose access profile you wish to apply and the new user to whom you wish to apply it. See *Applying Security Restrictions for Multiple Users* on page 4-42.

File access

Choose *Read access* for full viewing rights.

Choose *Write access* to permit additions/changes to the data source.

Choose *Read/Write* for both of the above.

Choose *Update access* to make changes to field values.

Access Restrictions

Name

User name.

Access

Type of access restriction.

Value

Value to restrict access to.

Segment, Field, Value

Choose *Segment* to grant access to all or individual segments.

Choose *Field* to grant access to all or individual fields.

Choose *Value* to limit access to values that meet a test condition. See *Restricting Access to Segments, Fields, and Field Values* on page 4-42.

Encrypting and Decrypting a Master File

You may use the Encrypt and Decrypt options to scramble and unscramble some or all of the contents of a data source. When you encrypt Master Files, they are secure from unauthorized examination.

Encryption at the data source level scrambles the entire contents of that Master File so it is unreadable. When you encrypt a Master File, you can decrypt it. Decrypting unscrambles the contents to its readable state.

Within a Master File, you can encrypt a segment. For details, see *Master File Tab: General (Segment Level)* on page 4-13.

Before you can encrypt or decrypt any Master File or segment, you must specify the DBA password. If you do not specify a DBA password, you will not be able to encrypt or decrypt.

Procedure How to Encrypt a Master File

1. At the file level in the Master File hierarchy (left pane), click the DBA tab and type the DBA password in the DBA Password box.
2. Save the Master File with the DBA password.
3. On the Command menu, choose *Security*, then select *Password*.
A dialog box opens.
4. Type the DBA password, then click *OK*.
5. On the Command menu, choose *Security*, then select *Encrypt*.

The Master File is encrypted.

Procedure How to Decrypt a Master File

1. On the Command menu, choose *Security*, then select *Password*.
A dialog box opens.
2. Type the DBA password, then click *OK*.
3. On the Command menu, choose *Security*, then select *Decrypt*.

The Master File is decrypted.

Procedure How to Encrypt a Segment

1. Make sure a DBA password has already been assigned. For details, see *How to Set Up Security for the Database Administrator* on page 4-37.

Note: Encryption will not occur properly if the DBA password has not been set prior to the encryption of a segment

2. Select a segment in the left pane.
3. Select the *Encrypt* check box next to the Segment Name in the General tab.
4. You can now add records to the segment.

Selecting the Type of Access

When you assign a user password, the *type of file access* and *access restrictions* become available. You must specify at least the type of access the user is permitted to have for the data source. The type of file access can be specified in the File Access group on the DBA tab. In this group, there are four file access options:

- **Read.** Allows the user only to read (to view) the data source.
- **Write.** Allows the user only to write (to add or to make changes) to the data source.

- **Read/Write.** Allows the user to read and write to the data source.
- **Update.** Allows the user to update (to make changes to) existing field values.

The type of file access determines what a user can do to the entire data source:

- If you specify only the type of file access, the user will have the specified access to the entire data source.
- If you want to impose additional limitations you can restrict access to segments, fields, and/or field values. See *Restricting Access to Segments, Fields, and Field Values* on page 4-42.

Restricting Access to Segments, Fields, and Field Values

You can restrict access to segments, fields, and field values in a Master File by specifying Access Restrictions for a user. When you specify what is to be restricted — segment, field, and/or field value — you can then specify the type of access that will be restricted. For fields, you can also specify whether or not you want the field to be displayed. For field values, you are required to enter a test condition.

- **Segments.** You specify the type of access for individual segments or all segments.
- **Fields.** You specify the type of access for individual fields or all fields. You can also specify not to display the data in that field using NoPrint. If you specify NoPrint for a field, the data will appear as blanks for alphanumeric format or zeros for numeric format whenever the user tries to retrieve it.
- **Field Values.** You specify the type of access (read or write) and the test condition. The user is restricted to using only those values that satisfy the test condition.

Applying Security Restrictions for Multiple Users

You can specify restrictions for one user and apply the same restrictions to other users. This helps when you want to set the same restrictions for a group of users

Procedure How to Apply Previously Defined Restrictions to Another User

1. On the DBA tab, type the new user password in the Users box, then press *Enter*.
The Same Restrictions group is activated.
2. In the Same Restriction group, click the *User Same as* check box.
3. Click the arrow on the drop-down combo box, then select the user with the security restrictions that would apply to the new user.

Security restrictions from the user in the User Same as box are applied to the new user. You can apply the security restrictions to other users by repeating steps 1 to 3.

Note: You must have created at least one user security restriction to apply security restrictions to multiple users

Deleting a DBA or User's Password

You can delete a DBA or user's security when it is no longer needed.

Procedure How to Delete a User's Password

1. On the DBA tab, type the user password in the Users box.
or
Double-click on the user name so it displays in the Users box.
2. Right-click and select *Delete* or press *Delete* on the keyboard.
The DBA dialog box opens.
3. Select *Yes*.

Note: If you delete the user based upon whom you have assigned security restrictions for other users, you must reset security restrictions for all users attached to the user you deleted

Procedure How to Delete a DBA Password

Note: Deleting a DBA's security will delete all users' security for that data source.

1. On the DBA tab, type the DBA password in the DBA Password box.
2. Right-click and select *Delete* or press *Delete* on the keyboard.
A Warning dialog box opens.
3. Select *OK*.

Viewing the Master File Layout

You can view a Master File in two ways:

- The file folder hierarchical structure displays in the left pane when you open a Master File. It shows the directory path and the root segment, followed by either fields, or other segments with fields.
- The branch structure shows the directory path, root segment, and any other segments in that Master File. The branch structure does not show fields in the Master File, however it provides a clearer view of the relationships between segments.

Procedure How to View a Master File

Click the *Show Layout Window* button on the toolbar to display the Master File in a branch structure.

Previewing and Printing a Master File

You can preview and/or print a Master File to view its code. The editor provides the following options:

- **Show Master Text.** Allows you to display only the Master File as read only text.
- **Print Preview.** Allows you to display the Master File as read only text formatted for printing.
- **Editor (Reporting Environment only).** Allows you to display the Master File or Access File as read and write text. To view a Master File in the Text Editor you *must* exit the Master File in the Master File Editor, then reopen it in the Text Editor.

You can also print the code for a Master File using the Print option on the File menu.

Procedure How to View a Master File as Read-Only Text

1. From the open Master File, right-click the name above the root segment in the hierarchical pane.
2. Select *Show Master Text*.

The file opens as code in the File As Text (Read-Only) dialog box.

Procedure How to Preview a Master File

1. From the open Master File, select *Print Preview* from the File menu. The Master File opens as code in a print preview window.
2. In this window you can zoom in and out, view two pages at once, view the next or previous page, print the Master File, and/or close the print preview window and return to the Master File Editor.

Procedure How to Print a Master File as Text

1. From the open Master File, select *Print* from the File menu.

The Print dialog box opens.

2. Set the Printer, Print Range, and Copies options and click *OK*.

The Master File prints as code on the printer you designated. The printed document shows the Master File path and the date and time it was printed.

Note: You can also print the Master File from the Print Preview option.

APPENDIX A

Sample Communications Configuration File (ODIN.CFG)

Topics:

- Sample Communications Configuration File (ODIN.CFG)
- Keywords Supported in the Communications Configuration File

The following section provides a sample communications configuration file using the TCP/IP, LU6.2, MQIS, and HTTP protocols and a cluster node. It also provides keywords that are supported in the communications configuration file.

Sample Communications Configuration File (ODIN.CFG)

The following is an example of a communications configuration file (ODIN.CFG) generated with the configurator.

In this example, when users and applications connect to the cluster node, MyClust, the connection is randomly directed to a server in the Alternate= list. If the random server is available, the connection is successful. If the connection to the selected node fails, the next sequenced alternate is chosen and tested for availability until all possible alternates are exhausted.

```
;BEGIN GLOBAL DATA
  NAME = IWAY
  LICENSE = 000
;END GLOBAL DATA

;*****

NODE                               = myclust
BEGIN
CLASS                               = CLUSTER
ALTERNATE                           = IWAYSRVE , IWAYTCP
END

;*****

NODE                               = IWAYSRVE
BEGIN
  PROTOCOL                           = TCP
  HOST                               = LOCALHOST
  SERVICE                             = 8100
  CLASS                               = CLIENT

  ENCRYPTION                          = 3DES
  CONNECT_LIMIT                       = 10s
END

;*****

NODE                               = IWAYTCP
BEGIN
  PROTOCOL                           = TCP
  HOST                               = edahp
  SERVICE                             = 8102
  CLASS                               = CLIENT

  ENCRYPTION                          = DES
  CONNECT_LIMIT                       = -1
```

```

END

;*****
NODE                = IWAYLU62
BEGIN
    PROTOCOL        = LU62
    PARTNER LU NAME  = IWAYMVS1
    LOCAL LU NAME    = LOCALLILU
    TP NAME          = MVSSRVR
    MODE NAME        = PARALLEL
    CLASS            = CLIENT(MVSSERV)
    TYPE             = TP

    PREALLOC        = 3200

    ENCRYPTION      = 0
END

;*****
NODE                = MQCLIENT
BEGIN
    PROTOCOL        = MQIS
    QUEUE MANAGER    = QM_IBI
    CLASS            = ASYN(LST_TCP)

    LOCALQ          = RESPONSE
    REMOTEQ          = REQUEST
END

;*****
NODE                = IWAYHTTP
BEGIN
    PROTOCOL        = HTTP
    HOST            = EDACS1
    SERVICE          = 8100
    CLASS            = CLIENT
    ENCRYPTION      = 0
    CONNECT_LIMIT    = -1

    SECURITY         = IWA
END

```

Keywords Supported in the Communications Configuration File

The following sections provide the keywords and their values that are supported by the communications configuration file (ODIN.CFG):

- Global Keywords
- Valid CLASS Values
- Synchronous Protocol Nodes (CLASS=CLIENT)
- Distributor Nodes (CLASS=CLUSTER)
- TP Product (TYPE=TP, CLASS=CLIENT)
- Asynchronous Client (CLASS=ASYNC)
- Local Nodes (CLASS=LOCAL)

Global Keywords

Default values apply to all nodes. Therefore, it is not necessary to include a value in a node that is also specified in a default.

Name	Protocols	Format	Use
CODE_PAGE	Sync	Digits	Specifies the number of the NLS code page.
DBCS	Sync	Characters	Specifies whether DBCS is used for NLS.
LICENSE		000	Permits use of alternate nodes.
NAME		Characters	Passed to the server, but otherwise not currently used. Used by the XML Transformation Engine to support MQ publishing of requests.

Valid CLASS Values

The CLASS type differentiates the purpose of the node. Supported CLASS values include:

CLASS	Usage	EDABROWSE Type
CLIENT	Synchronous client for a server.	C
CLUSTER	Synchronous client alternate server selector.	D
ASYNC	Asynchronous client link to the XML Transformation Engine.	A
LOCAL	Use a local data base interface (ODBC).	L

Synchronous Protocol Nodes (CLASS=CLIENT)

All options in this section relate to synchronous protocols. The MQ parameters refer to the use of MQ as a synchronous protocol. This is different than the asynchronous use of MQ as described in *Asynchronous Client (CLASS=ASYNC)* on page A-8.

Name	Protocols	Format	Use
CODE_PAGE	All	Digits	Specifies the number of the NLS code page. Can be overridden by EDASET.
COMPRESSION	All non-TP	1	Turns on data compression. Codes are: 0: off, 1: on.
DBCS	All	Characters	Specifies whether DBCS is used for NLS. Can be overridden by EDASET.
ENCRYPTION	TCP, LU62, non-TP	Characters	Sets data encryption ability and cryptography symmetric method used. 0: off. DES = 168-bit. 3DES = 512-bit. 3DESx = 1024-bit. IBCRYPT= user defined IBCRYPT DLL is loaded Triple DES and IBCRYPT are not supported under HTTP.

Name	Protocols	Format	Use
HOST	TCP	IP Address	Name or IP of the server.
LOCAL LU NAME	LU62	Characters	Local APPLID.
LOCALQ	MQ	Characters	Name of the local MQ queue from which responses are read.
MAXWAIT	All	Characters	<query wait>[,<row wait>]. Specifies the time the API waits before timeout. The first number is the time for return of any row. The second number (optional) is the time for rows beyond the first row. Time is expressed in seconds, or use of <min>M[<sec>S].
MODE NAME	LU62	Characters	Defines the LU to LU pair for ILU communications.
ODBC	All	Y/N	Determines if the data source is added as a USER DSN.
PARTNER LU NAME	LU62	Characters	Remote APPLID.
PASSIVE	All non-TP	YES	If set, the API disconnects the server on EDACOMMIT or on a specific EDASET, and automatically reconnects upon the next server use.
PROTOCOL	All	Characters	Communications protocol to be used.
QUEUE DEPTH	All	Numbers	Maximum number of incoming events to be queued by subsystems. Default is 32.
QUEUE MANAGER	MQ	Characters	Name of the IBM MQSeries queue manager for this node.
REMOTEQ	MQ	Characters	Name of the remote queue to which requests are written.
SERVICE	TCP	Characters	Service (port number) or name.
TP NAME	LU62	Characters	Defines CICS Transaction ID.

Name	Protocols	Format	Use
CONNECT_LIMIT	TCP, HTTP	Characters	0 = no wait. -1 = infinite wait. Default. nn = Number of seconds after the client abandons the pending connection. Useful in cluster deployment to avoid a lengthy delay of fail over response.

Distributor Nodes (CLASS=CLUSTER)

Name	Format	Use
ALTERNATE	Characters	Lists alternate nodes selected randomly.

TP Product (TYPE=TP, CLASS=CLIENT)

The TP Adapter looks like a standard server, with a few exceptions. It supports only TCP and APPC protocols.

Name	Protocols	Format	Use
HOST	TCP	IP Address	Name or IP address of the server.
LOCAL LU NAME	LU62	Characters	Local APPLID.
MODE NAME	LU62	Characters	Defines the LU to LU pair for ILU communications.
PARTNER LU NAME	LU62	Characters	Remote APPLID.
PREALLOC	All	Numeric	A value to send to the Transaction Adapter for CICS to reserve space for the transactions. Can be overridden by EDASET.
PROTOCOL		Characters	TCP or APPC.
SERVICE	TCP	Characters	Service (port number) or name.
TP NAME	LU62	Characters	Defines the CICS Transaction ID.

Asynchronous Client (CLASS=ASYNC)

Name	Protocols	Format	Use
CLASS=ASYNC (Server Name)		Characters	Server name is passed to the XML Transformation Engine to identify the server that it should use as the data source. This requires a server name entry in the Transformation Engine Data Source configuration.
LOCALQ	MQ	Characters	Name of the local MQ queue from which responses are read.
PROTOCOL		Characters	Must be MQIS.
QUEUE_MANAGER	MQ	Characters	Name of the IBM MQSeries queue manager for this node.
REMOTEQ	MQ	Characters	Name of the remote queue to which requests are written.

Local Nodes (CLASS=LOCAL)

Local nodes cause API/SQL to use an ODBC driver to resolve requests.

Name	Format	Use
CLASS=LOCAL (<dsn>)	Characters	The <dsn> is the name of the ODBC data source to be used.
PROTOCOL	ODBC	Must be ODBC.

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